



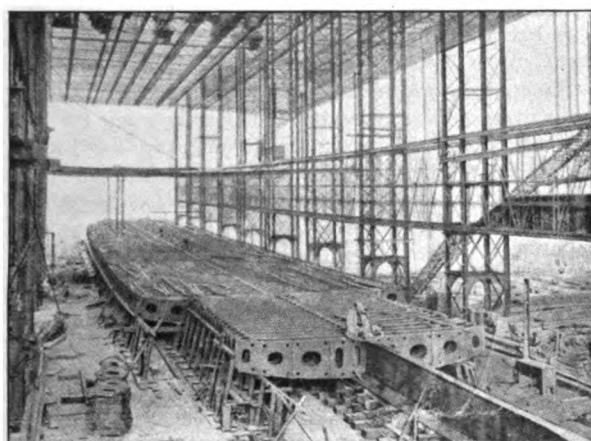
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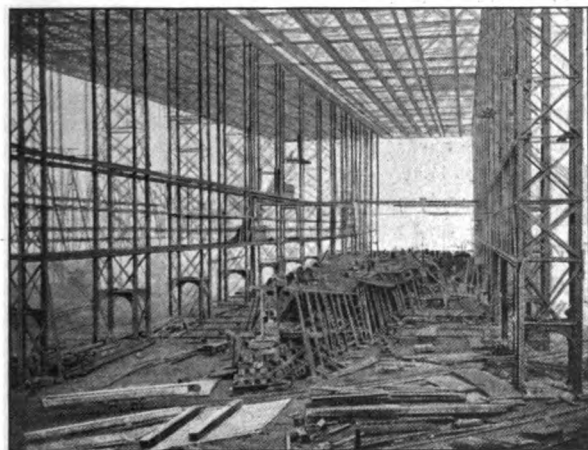
THE CUNARD 25-KNOT MAMMOTH STEAMERS

As the accompanying illustrations show, some progress has been made on these gigantic vessels. When completed, these steamers will be the largest and fastest in the world.



THE DOUBLE BOTTOM IN PROGRESS.

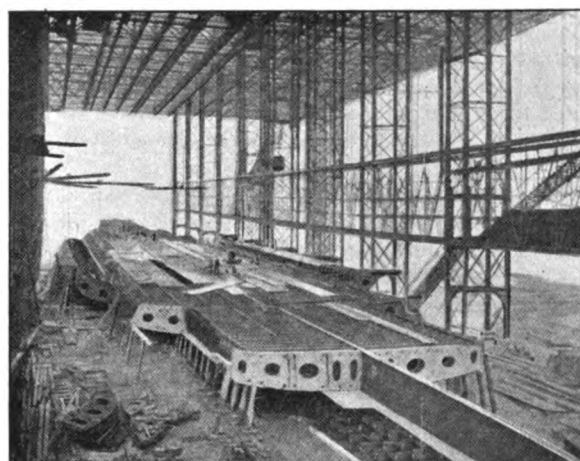
They will be close upon 900 ft. in length, and will have a gross tonnage of about 30,000, while their powerful turbine-driven engines, driving four propellers, one on each shaft, will



A BOW VIEW.

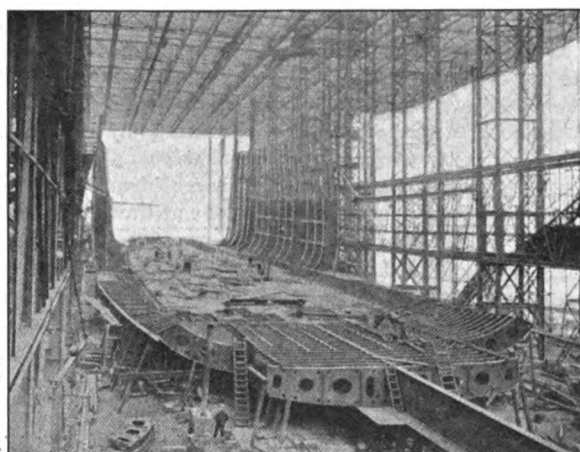
propel the huge craft at a speed of 25 knots per hour. The engines are expected to develop a total indicated horse-power of 70,000. The pioneer steamer of the Cunard line—the historic

Britannia, which sailed on her first voyage in July, 1840—had paddle engines of 750 horse-power, so that in less than 70 years the power placed in a single vessel has increased almost ten-fold.



A LATER VIEW.

The pictures, which show the double bottom in the various stages of progress, are from photographs taken at the yard of Messrs. Swan, Hunter & Wigham Richardson, where one of



THE DOUBLE BOTTOM WITH SOME OF THE FRAMING.

these mammoth vessels is building. The double bottom, in addition to strengthening the huge fabric, is designed to carry water-ballast, while in case the outer skin of the bottom should

be pierced, the entering water would be confined between the inner and outer skins of the ship, and thus the safety and stability of the vessel would not be impaired. The liner, it will be noticed, is being constructed under cover, a method which will materially facilitate the work of construction.

COMMERCE OF SUEZ INCREASING

Liverpool, May 29.—During the past year there has been a considerable increase in the Suez canal traffic. The net tonnage for the past year shows an increase of 1,494,547 tons, as compared with that of 1903, and of 2,153,422 as compared with that of 1902. Notwithstanding the reduction of 50 centimes in the tonnage dues which took effect from Jan. 1, 1903, the transit receipts during that year amounted to 103,620,268 francs or only 99,752 francs less than those of 1902, while those for last year amounted to 115,318,479 francs, and were higher than in any previous year since the opening of the canal. The increase in the tonnage passing through the Suez canal during 1904 was owing to heavy shipments of wheat from India to Europe, and to the large quantities of coal consigned to the east, which latter exceeded by about 500,000 tons the shipments during the year 1903, and which are, no doubt, principally for the use of the belligerent fleets. The number of vessels which passed through the canal was 3,708 in 1902, 3,761 in 1903, and 4,237 in 1904, of which 2,165 in 1902, 2,278 in 1903 and 2,679 in 1904 carried the British flag. There has been an increase of 1,430,376 tons last year as compared with 1903 in the tonnage of British vessels, which amounted to 6,772,911 tons in 1902, 7,403,553 tons in 1903, and 8,833,929 tons in 1904. During the same period the tonnage of German vessels has increased from 1,707,322 tons in 1902, to 1,773,265 in 1903, and to 1,969,561 in 1904. The percentage of British vessels and their net tonnage increased in 1904, being 63.2 and 65.9 respectively, as against 60.6 and 62.2 in 1903, and 58.4 and 60.2 in 1902. The percentage of German vessels and their net tonnage was 12.8 and 14.7 respectively, as compared with 13.1 and 14.9 in 1903, and 12.9 and 15.2 in 1902, while the percentage of net tonnage of the other maritime nations using the canal in 1904 remained practically stationary as compared with the preceding year. The board of the Suez Canal Co. has decided to propose to the next general meeting of stockholders to be held on June 5, the following distribution of dividends for the year 1904: Capital shares, francs, 150,894 gross or francs 141 net; shares de jouissance, francs 125,894 gross or francs 117.447 net; founders shares, francs 70,926 gross or francs 66.57 net. It is reported that the Suez canal rates are to be reduced from Jan. 1, next. The traffic of the canal largely increased in 1904, and this gave a commensurate increase in the dividend, which last year was 130 francs per share, and this year 141 francs per share. As to whether the reduction is likely to be maintained, an authority in shipping matters says: In 1906 the canal company are going to lose 10,000,000 francs in consequence of this reduction, and it is a question whether or not such a loss can be continued. The company are taking considerable risks in the interests of the shipping trade—certainly not in the interests of their own shareholders. The proposed reduction is 75c per share, which is equal to a reduction of 10,000,000 francs or \$2,000,000. The arrangement is just part and parcel of the London program and is by no means in consequence of the agitation which was set on foot a short time ago. On the other hand, there are shipping authorities who hold the view that the 75c reduction is distinctly the outcome of the recent agitation. At any rate the dividend of 28 per cent for 1904 is 2 per cent more than in the previous year, and is 3 percent above the limit of 25 percent at which the company agreed, in consonance with an "honorable understanding" with British shipowners to cry halt until the canal dues had been reduced to 5f per ton. Today these dues

stand at 8f 50c, and if reduced next January, they will be 7f 75c per ton.

It has now been demonstrated beyond the possibility of a doubt that the turbine is as great a success in driving steamers of the very largest tonnage, steamers which will have to face all manner of weathers in the open ocean, as it has been in propelling channel steamers. To make its triumph complete, the steam turbine has now practically to be applied to only two more types of ocean ships, namely, the "tramp" steamer and the battleship. In the torpedo boat destroyer, the high speed cross-channel steamer, the twentieth century steam yacht, the Atlantic liner, and the fast cruiser Amethyst, the turbine has succeeded almost beyond the wildest hopes. Now it is authoritatively stated that one of the only two remaining types is to try the new marine motor, the British admiralty, evidently so satisfied with the results obtained from the third-class cruiser Amethyst, having decided to fit turbine engines to the latest battleship about to be laid down. The engines are to develop 23,000 I. H. P. and will consequently be nearly equal in power to the machinery of the new 25-knot Cunarders. It goes without saying that this turbine-engined battleship will excite the keenest curiosity in naval circles, and from an engineering point of view, if not from the commercial standpoint, also, the day would seem to be not far distant when the turbine will supplant the triple-expansion engine in the tramp steamer also. And when that day comes, the turbine will have triumphed all along the line.

Apropos of warships, no fewer than three first-class cruisers and one battleship for the British navy are receiving their final touch in the Clyde preparatory to passing into commission. The cruiser Roxburg concluded her speed trials and returned to her builders' yard at Glasgow a day or two ago for completion. She developed 23.6 knots, although on one run she made 24 knots, the highest yet recorded. The cruiser Carnarvon has also completed her trials and exceeded the guaranteed speed of 23 knots. She will leave the Clyde to be commissioned next week. The Greenock-built cruiser, Argyle, will be ready for speed trials in a month. The Clydebank battleship, Hindustan, is also ready for commission. The new scout Skirmisher has just reached the Clyde to undergo her speed trials. Such a list is a record in privately-built warships.

A vessel has just been launched by Sir Roylton Dixon & Co. at Middlesborough, for the Canadian coal and ore trades which on account of its embodying the latest improvement in cargo steamers may interest readers of THE MARINE REVIEW. This vessel is the third of the new type built to the order of Statsrad Gunnar Knudsen, of Porsgrund, Norway, and is so designed that although she is over 51 ft. beam, she has no hold or lower deck beams, pillars or web frames throughout the holds, making absolutely free and clear holds for cargo. Her construction and design is carried out on Harroway and Dixon's patent system of cantilever transverse frames. She has been visited by a number of experts and members of the various classification societies, all of whom have expressed their admiration of what they consider to be the strongest and best type of cargo boat yet put on the market as regards dead-weight capacity and tonnage measurement. A great feature about the ship is that when in ballast trim only, the propeller is almost entirely immersed, so that in this condition the vessel can go any distance and meet any weather. She carries over 2,000 tons of water ballast, five-eighths of which is in the double bottom, and the remainder between the cantilever frames and the shell in watertight chambers fore and aft, and giving a double margin of safety. Further, she is a complete self-trimmer, with hatches 30 ft. wide, and has eleven masts with twenty derricks, and is so arranged that she will load about 7,000 tons of coal in three hours in a little over 22 ft. draught, without any trimming whatever, and can be discharged in seven hours. Ample accommodation is provided

for officers and crew, the engines being placed right aft. She will run for a number of years for the Dominion Coal Co., of Canada, to trade between Sydney in Nova Scotia and Montreal. She has been built under the supervision of Capt. Nilsen, who commands the ship, and is classed highest with *Norske Veritas*. The vessel will be fitted with triple-expansion engines of the latest type by the North Eastern Marine Engineering Co. of Sunderland, having cylinders 26, 42 and 40 by 48 in. stroke, supplied with steam by two large single-ended boilers working at 180 lbs. pressure. She was named *Chr. Knudsen*.

The turbines for the Cunard liner *Carmania* are now practically completed. They have only to be subjected to tests in the engine shop before being fitted on board the vessel. These turbines will, of course, be the largest in the world.

The ships reported to the registrar-general as coming into registry and removed from registry in the United Kingdom and colonies during the month of April are specified in a report just issued. This shows that a total of 103 vessels aggregating 103,593 tons gross were added to, against 135 vessels of 65,604 tons removed from registry. The additions to United Kingdom registration include forty-five steel steamers of 98,613 tons, and four iron steamers of 1,147 tons (aggregate). On the other hand the removal list includes about fourteen steel steamers of 26,755 tons and sixteen steamers of 12,983 tons, showing that the British mercantile marine has improved considerably in efficiency in the period named. Of the tonnage registered seven vessels were purchased from foreigners, against fifty sold foreign. The net result is a decline in the number of vessels under the British flag of thirty-two, but a net increase in tonnage—of the most modern type—of 37,979 gross tons. Of the 135 vessels removed from registry, the following causes were given for the cancellation of their registers: Sold foreign, 50; wrecked, 12; stranded, 9; lost, 15; broken up, 7; abandoned, 8; collision, 5; missing, 7; foundered, 2; burnt, 2; and other causes, 18.

The great canal trust which is to be formed under an act of parliament to take over, modernize, and standardize British canals is meeting with much favor, and although the present bill is said to have not complied with the standing orders of parliament, the movement will not be allowed to drop. The following is a list of the canal systems which it is proposed to at first acquire: Birmingham Canal Navigation, Coventry Canal Navigation, Grand Junction Canal, Kennet & Avon Canal Navigation and the River Avon Navigation (belonging to the Great Western Railway Co.), Leeds & Liverpool Canal, Trent & Mersey Navigation (belonging to the North Staffordshire Railway), Oxford Canal Navigation, Sharpness new docks and Gloucester & Birmingham Navigation Co., Warwick & Birmingham Canal Navigation, and Warwick & Napton Canal Navigation.

SUBMARINE BELLS

United States Consul General W. R. Holloway, Halifax, Nova Scotia, in a communication to the department of commerce and labor on the subject of submarine bells, says: "An inspector who has just returned from a tour of the buoys on the coast of Nova Scotia reports that the submarine bells which have been placed in position, one off Sambro and the other off Egg Island, are working admirably. The bells can be heard at a distance of five miles, as tested by the steamer *Laurier*, which is equipped with a receiving instrument on which the sound is heard. Submarine telephone signals will be established at several other points on the Nova Scotia coast in the Bay of Fundy and on the Cape Breton seaboard. The department of marine has contracted for a large number of these well-tried and successful aids to navigation and they will be installed as rapidly as possible. It is expected that all steamers running to Canadian ports will soon be supplied with

the receiving apparatus which will enable approach to the coast with safety in all kinds of weather. Mr. Prefontaine, minister of marine, made a personal test of the submarine telephones on the Metropolitan Line steamers running between Boston and New York, and he is confident that these bells will be of the utmost value to Canadian shipping."

LENGTHENING OF STEAMERS

Buffalo, June 5.—Speaking the other day of the steamer *Sevona*, which was built in 1885 as the *Emily P. Weed*, and which has lately come out of dry-dock here with an added length that will give her close to a half more capacity than she has had before, an expert expressed his opinion that she would easily justify the cost of about \$70,000 to do the job, though that is really a little closer to the addition of a half more to her valuation than the new capacity is to the old. She used to carry about 3,200 tons and is now expected to carry 4,500 tons and practically all that she is out to offset the income from that 2,600 tons extra that she is good for on a round trip is the interest on the cost, some more insurance and after that very little.

For she will run with about the old power and same amount of help. If her new boiler capacity is added to now she will make better time than before, which is not much advantage to her. The slower handling in port of the big fleet of late years has made vessel owners more careless in the matter of speed than they used to be and they certainly will not buy much coal to burn up for that purpose. So it is said that the *Sevona* may be considered a sort of mark to go by where other owners are considering the same step with their vessels.

On some accounts she is a less favorable subject for lengthening than would be the case with others, as she has only 43 ft. beam, while most of the boats that are likely to come up for the same work are 50 ft. beam or a little more. There seems to be no fear of getting the craft too long and narrow. The question of beam comes in otherwise. The more beam the more capacity to every added foot of length.

But just think of it! Suppose that the owners or builders of the 5,000-ton fleet had been told at the time their size was arranged that by this time the thing to be done with them, to save them from being outclassed, was to add as much to their length as was safe from a shipbuilding standpoint. What would they have said? Probably not one of them would have believed the thing possible, yet shipbuilders are now pointing out this proceeding as entirely the thing to do.

As to the general idea of lengthening vessels there is a great change taking place in the recollection of people not so very old. I suppose it is mainly because the hull is now made of steel instead of oak. I well recall the day when it was considered a very grim sort of joke for a person to touch the limit of imagination in evil by wishing that his enemy might go on a voyage in a "lengthened vessel." It is said that the vessels which have been lengthened on the lakes have made good records and really there is nothing to tell against the practice, since it is a matter of rivets now instead of the matching of planks together. The entire hull is at least of uniform strength and if the proportions are not violated too much no question can be raised to the proceeding, provided the earning warrants the cost.

In fact they are saying that the lengtheners of the *Sevona* have in some cases been more cautious than is thought to be necessary, in adding new work that was not found in the old, so that the new steamer ought to be stronger than the old one ever was, whether the cost is found to be required or not. It is of course felt that if there is any error it must be made on the safe side. There does not seem to be much idea as to whether this sort of work is to be done in much quantity hereafter, but it is apparent that people are thinking it over more or less these days.

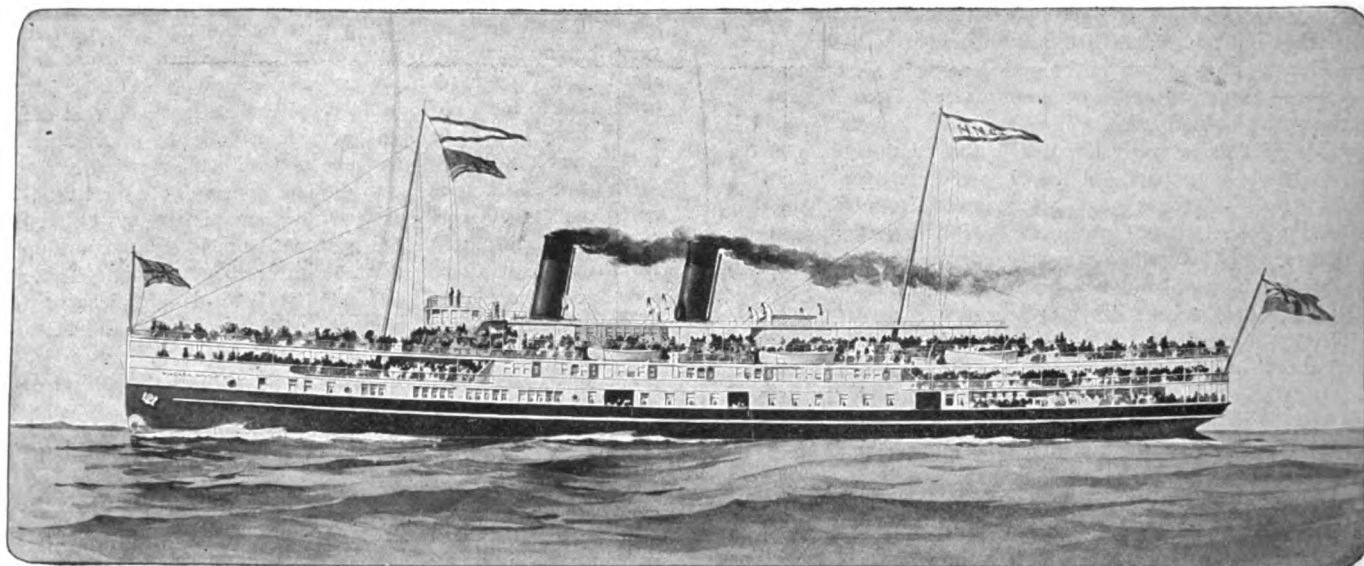
Now as to seaworthiness on account of length. I find people advocating a vessel longer than the average lake steamer of a dozen years ago. Of course the great strain is encountered in heavy seas. The boat is hoisted high on the crest of a wave and if she is a comparatively short one it is argued that one end and likely both will come well up out of water, possibly so that there is a serious drag on the hull amidships from both ends at the same time. It is easy to suppose that the lamented steamers Gilcher and Western Reserve, one loaded and the other light, both lost the same season in the early days of steel hulls, were broken in two in just this way. In fact it is not easy to imagine any other way of foundering them.

Now if the longer vessel, as the theory goes, is always borne up by at least two great swells there is a mighty argument in this in favor of the 500 footer as against one of 300. Who shall say that the theory is not correct?

JOHN CHAMBERLIN.

NEW STEAMER FOR NIAGARA NAVIGATION CO.

The accompanying illustration will give a very good idea of the new twin screw steamer which the Canadian Ship Building Co., Toronto, is building for the Niagara Naviga-



NIAGARA NAVIGATION CO.'S NEW STEAMER.

[Building by Canadian Ship Building Co., Toronto.]

tion Co. for service between Toronto and Lewiston, N. Y. The steamer is planned on the lines of the day service observation type of steamers, having four principal decks, namely, main deck, promenade deck, upper promenade deck, and lower or orlop deck below the main deck. Her lines are like those of the Chippewa with the exception, of course, that she is propelled by screws instead of paddle wheels. The general dimensions are: Length, 317 ft. 6 in. over all; beam, 51 ft. 8 in.; depth, 15 ft.; draught, 10 ft. She will have two sets of quadruple-expansion engines with cylinders 17½, 25, 36 and 52 in. diameter by 30 in. stroke, supplied with steam from six Scotch boilers equipped with Ellis & Eaves draft and allowed a pressure of 210 lbs. Her guaranteed speed is to be 22½ miles an hour and if she attains this speed she will be among the fastest vessels on the great lakes.

THE LUMBER TRADE

Duluth, June 5.—Practically all the lumber to be cut this summer at the head of Lake Superior has already been sold for eastern cargo shipment. The business of lumbermen there is very slow now as there is nothing to be sold. In addition to the 250,000,000 ft. the Duluth and surrounding mills will

ship east by water there will be far more than ever before from mills in the interior. As an instance of this is the great mill of Brooks-Scanlon Co., at Scanlon, a few miles out of Duluth. Last year this mill shipped about 30,000,000 ft. to Duluth and on east; this year the amount will be 75,000,000 ft. or three-fourths of its yearly cut. This mill was not a factor at all two years ago, as it was not then in existence. The great group of Weyerhaeuser mills at Cloquet, adjoining Scanlon, will ship via Duluth this year not less than 100,000,000 ft. Two years ago these mills sent their first lumber east and in the way of a trial at a business they did not exactly approve of, but wanted to attempt. It has grown out of all expectations and is sure to increase as time goes on. The east needs the lumber and there is a decreased supply from other parts of the lakes, notably, the eastern mills of Lake Superior and those of Michigan. The loss of supply for the northwest, to which these interior Duluth mills formerly shipped is made up by an increased business from the west coast and from the south. Pacific coast timber now reaches within 250 miles of the head of Lake Superior, and a regular supply and for special bills comes right to Duluth, while southern pine is sold regularly and competes with white pine in yards on the northern line of Iowa. So close is this western and southern

competition that no large special bills of big timber for points on the lakes, even for cities where there are large mills, ever comes from them, but it is all from the far west.

ATIKOKAN IRON CO.

Duluth, June 5.—Work has begun at Port Arthur on the construction of the plants of the Atikokan Iron Co., and about \$3,000 a day will be expended there all this year. At the mine on the Atikokan range, diamond drilling is under way and a tunnel is to be driven into the hill at once. The Canadian Northern road is to be run in to the property at once, but this is a small matter, as the main line passes not more than four miles distant. Mr. J. C. Hunte, who has just resigned as cashier of the American Exchange bank at Duluth, after a continuous service there for 25 years, since the bank was founded, is in charge of the operations of the company, and will spend most of his time at Port Arthur for the next year or more.

Andrew K. Loughton of Painesville, O., has received a contract for building a stone superstructure to the south breakwater at Buffalo.

BRITAIN'S LOSS, OUR GAIN

Editor Marine Review:—The London Times (financial and commercial supplement of May 1), says that the three British shipping wars now going on "are assisting foreigners to compete successfully with British manufacturers in the South African, Australasian and Indian markets," and why not? Great Britain will never again see the day when the commerce of the world, as well as the ships of the world, will be hers. As to South African freight the editorial says that American exports from New York to South Africa enjoy preferential shipping freights, "which give them an advantage of from 10 shillings to 30 shillings a ton (40 cu. ft.)." That this particular war has lasted three years and is just beginning over again. "The American exporter has, therefore, a prospect of a prolonged war giving him a substantial preference in shipping

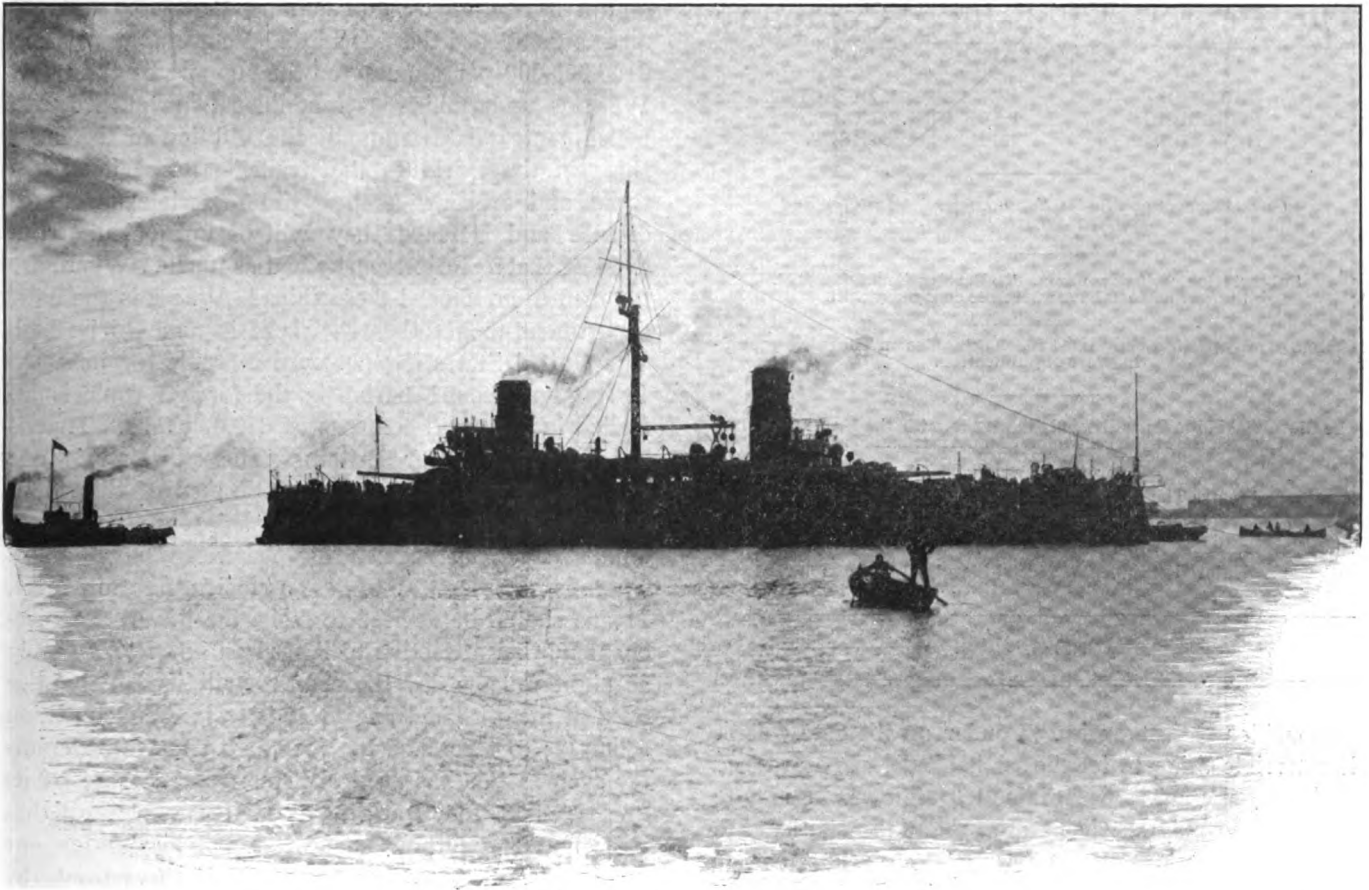
In the Indian freight war we have not much interest as our sales to India have never amounted to much more than a row of pins.

WALTER J. BALLARD.

Schenectady, N. Y.

COALING WARSHIPS AT SEA

The trials of the latest approved method of coaling warships at sea in which the battleship Illinois and a collier are now engaged off the port of Norfolk, Va., bid fair to prove the most conclusive in results of any tests yet undertaken along this line. Lieut. Com'dr. Thomas Snowden, who has been for three years past executive officer of the Illinois and who is known as one of the most capable and efficient officers in the navy, has prolonged his interim of sea service three weeks in order to personally conduct the present trial. The system



JAPANESE BATTLESHIP KASUGA

[For Description see Marine Review June 1, 1905]

freights to South Africa over his British competitor," paraphrasing the Prince of Wales' famous Guildhall speech, we can say "wake up! American exporter, wake up!"

The next complaint is, speaking of the Australasian freight war, that goods are carried from New York to Melbourne at from 17 shillings and 6 pence, to 30 shillings a ton less than the same classes of British goods from London or Liverpool to Australia. In the same way American exports to New Zealand are receiving a preference of from 7 shillings and 6 pence to 30 shillings a ton over British goods." That on the one side of the fight are four British companies and opposed to them is an American company, and the White Star Line (nominally American but purely British in management). That is why our trade with Antipodes is increasing so nicely. We owe a vote of thanks to the White Star Line and the "other American company," especially while our house of representatives continues to neglect its duty to our shipping and export interests in the matter of ships.

of coaling with which experiments are now in progress is, in principle, the one which was first introduced some years ago and the initial showings of which were chronicled in a paper read at the annual meeting of the Society of Naval Architects and Marine Engineers. It is stated, however, that the apparatus in its present form shows many improvements over the design as originally produced. The American manufacturers of the apparatus some time ago closed a contract for the use of the apparatus in the Russian navy and it is expected that the present test will determine the question of its adoption by the United States navy department.

The Rickmers, the largest sailing vessel in the world now in course of construction at Geestemunde, will be a five-master of 11,350 tons displacement and a dead weight carrying capacity of 8,000 tons. She will have auxiliary power consisting of triple expansion engines of 100 H. P. placed amidships. Her length will be 441 ft.



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Consider Rojestvensky. Ponder on his fate. Isn't it a terrible thing to let the sea habit die out of a race? Rojestvensky was foreordained to failure. His fate was irretrievably sealed before he left the Baltic. He had magnificent ships, the best in the world, superior in armor, armament and numbers; but he lacked personnel and for that reason they were as useless and ineffective as painted ships upon a painted sea. We repeat that it is a terrible thing for a maritime nation to let the sea habit die out of its people—and Russia has the greatest coast line on earth. From what source does a nation draft its men to man its warships? There is only one—its merchant marine. No man is born with a knowledge of the sea. It has to be acquired. It has to be obtained on ships sailing in the competitive trades of commerce. A maritime nation must have a merchant marine of its own, manned and owned by its own citizens or it must some day pay an awful price for its failure to have one. Nothing takes the place of love of country in a fight. There is no security unless there is patriotism back of gun-fire. One cannot march a regiment aboard a ship to fight a naval battle with it. What was Rojestvensky

to expect with his inexperienced and untrained crews? He was not to blame. His country was to blame for its neglect of its maritime interests, for the fact that when it needed a navy it had no disciplined men, no real patriotic Russian seamen trained in the merchant marine of Russia, to put upon its battleships. When the Russian admiral met Togo with his small but effective Japanese fleet, every man drafted from the merchant marine, experienced with the sea and flaming with passion for his native land, he was doomed to inevitable defeat; and so is every nation in Russia's plight that meets a like adversary.

What is the lesson? Is the United States any better off than Russia? The navy department at Washington is continually complaining that it cannot get men to go aboard the warships. We are appropriating \$100,000,000 per annum for the support of the navy. We are undertaking a magnificent naval program which contemplates annually the addition of the finest ships in the world to the available naval fleet. In speed and cruising qualities, in material powers of offense and defence they will be unequaled. But what of that? Rojestvensky had as much. Where are the men to go aboard these ships? Where is the navy department to get them? There is none to be had. The United States has not even a cradle for its navy. Its total merchant marine in the foreign trade is included in the small compass of 879,000 tons. That is not a mouthful for Britain. The situation is one which may well make the patriotic men of this country pause. American merchant ships are needed to obtain American seamen for American naval ships. There is no other way to get an efficient fighting force. Means should be devised to make the life of the merchant marine attractive to American boys. As surely as night follows day the country will some day have need of them. The thing to do is to face the condition squarely; to recognize the fact that a maritime country such as this has need of a merchant marine of its own as much for protection as for commerce and that if economic conditions make it impossible under our fiscal policy to win a profit from the sea to remedy by artificial means a state which artifice has created. If the American boy finds that he can do better on shore than he can aboard ship let the nation make up the difference and make him a member of our naval reserve in consideration thereof. We can buy cheaply now that which, if neglected, will some day have to be dearly bought.

Consider that these were battleships and armored cruisers once but are now simply junk: Kniaz Suvaroff, Alexander III, Borodino, Orel, Oslivia, Sissoi Veliky, Navarin, Dmitri Donskoi, Admiral Nakhimoff, Oleg, Aurora, Svetlana, Almaz, Jemtchug, Izumrud, Nicholas I, Admiral Oushakoff, Admiral Seniavin, Admiral Apraxin and Vladimar Monomach.

The plight of the big Cunarder Caronia in New York harbor lately is one which would seem to call for some attention and for some amendment to the rules.

morning. It was foggy at the time the accident happened. It was my watch off, and I was asleep in my berth when the collision occurred. It threw me right out of my berth onto the floor. I snatched a few clothes and ran up stairs as fast as I could go. The Harvard had struck us on the port side between the second and third hatch. Our crew saw there was no hope and we piled into the Harvard, running across a ladder that was run out for us. When we all got aboard the Harvard backed off and within a couple of minutes the Palmer dived to the bottom of the lake."

FREIGHT SITUATION

The total movement of ore to June 1 of the present year has been 5,814,604 tons. The May movement was the greatest in the history of the trade, reaching 4,619,431 tons. The movement during April of the present year was 1,195,173 tons. No comparisons can be instituted with last year's traffic because the ore trade was tied up last year by the Masters and Pilots' strike and only 7,243 tons were moved during May which was later credited to the June statement. It is apparent that if the total shipments are to reach 30,000,000 tons during the present year the heavy May movement will have to be kept up during the next five months when navigation may be said to be favored with good weather. A slump is naturally to be expected during the November storms. The ore trade is certainly being handled in a thoroughly excellent manner. The ore carriers are getting excellent dispatch at both ends of the line, notwithstanding the fact that the lightness of the coal and grain trade has thrown the greater part of lake tonnage into the ore trade. There is no indication of a change in the ore freight rate which has stood at contract figures since the beginning.

The coal rate has broken five cents as the result of the fight which has been made by the Pittsburg Coal Co. during the past two weeks. Nearly all of the Cleveland owners stood out against the reduction in the rate though it is understood that vessel owners at other ports had accepted it some time ago. However, during the present week the cut was accepted by all of them. The rates are now 30 cents to ports at the head of Lake Superior, 35 cents to Sheboygan, Manitowoc, Green Bay, Escanaba, and Gladstone and 40 cents to Milwaukee. The coal movement has been light up to the present time but it is now expected to increase.

FAILED TO RESPOND TO SIGNALS

When the Anchor liner Juniata was making her maiden trip up the Detroit river recently she overtook the Gogebic with her tow Biwabie and blew the customary signal asking permission to pass. The Gogebic did not reply. The Juniata checked as she passed to ease the resulting strain on the Gogebic's tow line when the slack caused by the suction should again be taken up. Capt. James Stone, supervising inspector of steamboats, who was aboard, was much interested in this incident, saying that too much negligence in answering signals was exhibited by the vessels of the lakes and relating an incident wherein he had been compelled to suspend a master's license for failing to respond to signals. Capt. Edward Martin reported that it was common on the part of vessels not to answer.

About ten minutes later the steamer W. P. Thew bound down with the Wm. Case in tow was met and the Juniata immediately signalled that she would pass to port. To this signal the Thew did not reply. Of course from the relative position in which both steamers were it was clear what they intended to do, but Supervising Inspector Stone nevertheless held that the master of the Thew was culpable in not having responded to the Juniata's signal. Capt. Stone, on several occasions during the past two or three years has spoken quite forcefully on this very subject and Mr. J. C. Evans, western

manager of the Anchor Line, stated that there should be a stricter observance of the rules of the road by the vessels of the great lakes.

OBSERVANCE OF FIRST PRINCIPLES

Editor Marine Review:—The Marine Review rightly contends that the Isthmian Canal Commission should buy supplies and steamers, if they are necessary, in our own market. The reason for this is, mainly, that it belongs to our people to do their own work. We may privilege others to do some of our work, but not all of it, and no more than we can allow with convenience. It is not for the government, but for the people to say what this proportion shall be—they are the sovereign authority in this republic. Ever since the Republican party came into power the people have said in presidential elections, except in two cases, that the tariff should afford protection to the various industries of the country—in conformity with the original idea of the government.

When the government was formed most all of the states enjoyed a degree of tariff protection. The free-traders of that time were nearly all "incidental" protectionists. The federal government took over, as a necessity of the situation, the institution of tariff for revenue and for protection, and this will never be abandoned, for the simple reason that it is defensive in character, and founded on individual and national justice. No citizen of this republic has a right to refuse employment to a fellow citizen and give it, by preference, to the subject of a foreign prince or potentate, and no good citizen will do it.

Congress has provided a fine of a thousand dollars for the offence of crossing the line to hire a single workman to help build a vessel, a house, or do other work in place of employing one of our own citizens. This law is grounded in justice, and no words can speak louder for the *rights* of American workmen to do the work of their countrymen.

We have another illustration in the law of 1817 providing that foreign vessels shall not appropriate the work that *belongs* to our own in the domestic trade. The statesmen who passed that law recognized at its full value the virtue of doing our own work, and giving the labor and capital of our own people their just due. There is no sound reason why a foreign vessel shall carry cargo between any of our ports. That they could do it *cheaper* is not a sound reason; that we had no vessels of our own could be the only sound reason, and good public policy would see to it that this condition had a brief existence.

Our government has no right, either in ethics, or law, to plead its *own fault*—that American vessels cannot be found for the use of the Panama Canal Commission. It has no right whatever to go abroad for supplies that are required for its own use anywhere—on the pretense that it is looking for a bargain. The American market is the only market for its purchases, just as our territory is the only place in the world for the recruitment of our forces for the army and navy. Aliens might be employed in the government offices at Washington, for lower salaries than our own people, but the administration that would undertake this "reform" in the interest of economy would soon hear from the people that the proposition was traitorous. The rights of our people and of our ships do not depend at all upon "*cheapness*." The idea that they do is unsound. The work that *belongs* to our farmers, our factories and our ships to do, it is the duty of our government to secure to them. A priest cannot teach that the ten commandments must be obeyed in his pulpit, and go thence and break them all without deserving the execration of saints and sinners. The law-giver must observe his law. The executive of our government is but a citizen, and the rights and duties of a citizen must not be tampered with at Washington any more than at home. In office or out of it, rights and duties are precisely the same.

WILLIAM W. BATES.

LAKE SUPERIOR CORPORATION IN GOOD SHAPE

Duluth, Minn., June 6.—Mr. B. J. Clergue of the Sault Ste. Marie company, who was in Duluth on Saturday says that the Lake Superior Corporation is now making 250 tons of coke pig iron daily and that its furnace is running often up to considerably over that, sometimes to nearly 300 tons a day. Its new charcoal furnace, he states, is now making more iron than any other stack of its nature, from 150 to 160 tons a day. The rail mill is running heavily, and has made up to 600 tons a day.

"This," says Mr. Clergue, "is an ample reply to those who have criticised our mill as an old second hand one, that would never do work. It is true that we did buy an old mill in Pennsylvania, but it forms a very minor part of the present works which is of a new and modern pattern. Indeed it is said by rail men who have inspected our works that there is no mill more up-to-date and for its size, more economically built and operated, to be found. The company has just completed a large order of 80-lb. rails for the Canadian Pacific and is now working on another for 100 lb. rails for the Canadian section of one of the American roads. This, it is needless to say, is the largest rail ever made in Canada. There are orders ahead for a long period and the outlook in the Canadian west is such that we think we shall have plenty of business for some time.

The inauguration and successful operation of these works, steel and pig iron, as well as the continuation of successful work in other manufacturing departments of the company, are all the justification that my brother, Mr. F. H. Clergue, needs, and are abundant. It must be remembered that his contracts with builders for the entire steel plant, including blast furnaces and rail mills, were such as should have resulted in their completion long before they were actually ready. Indeed, the furnaces should have been done nearly two years before they were blown in and much more than a year before they were ready, and that if the contracting concern had carried out its agreements and had these works ready on time, they would have been earning large sums net before the trouble overtook our company and before the panic made money so tight in the east

that our stockholders refused to continue their payments of sums they had underwritten and agreed to put up. In that event we should have been in such shape that no money would have been required and the works themselves would have taken care of the payments, as they are now able to do."

The company is paying its interest charges to the Canadian government and others promptly and is gradually working into a much firmer condition than it has ever been, but the strain has been very severe and Mr. Clergue, as well as others, have done tremendous work, the character of which is not appreciated by the public. Mr. Clergue's ability was never put more severely to the test than during the late reorganization proceedings.

An exhaustive test of iron smelting by electrical arc is to be made at the Sault by the Canadian government, Mr. Clergue having offered space and power for the experiments. These are to embody the results of information secured by the Canadian commission that was abroad on this matter last year, and will be most scientific as well as probably by far the most exhaustive ever made along that important line.

GRAIN AT DULUTH

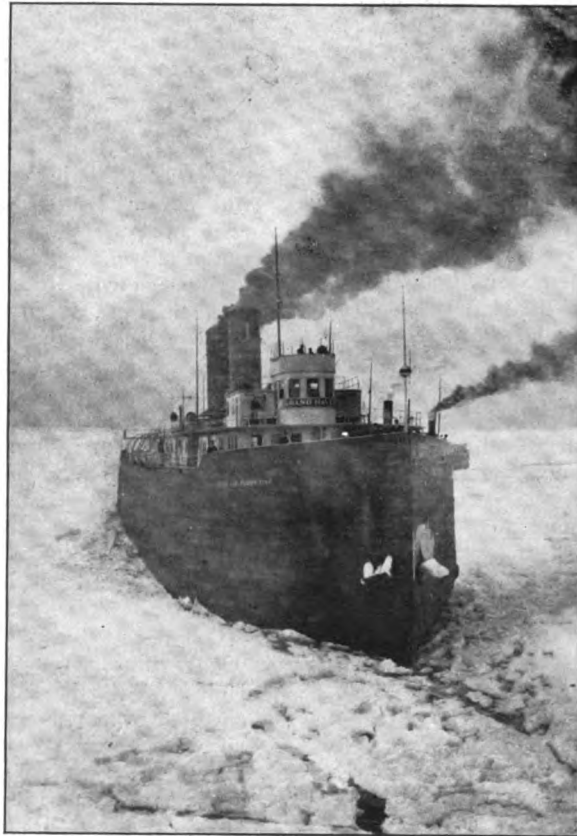
Duluth, June 5.—Total receipts of wheat at the head of Lake Superior for all last month were only 61,000 bu., and of all grains but 344,000—a fair shipload, as loads

go now. For last week the total receipts of wheat were but 7,000 bu. Surely this is getting down to a pretty fine point,

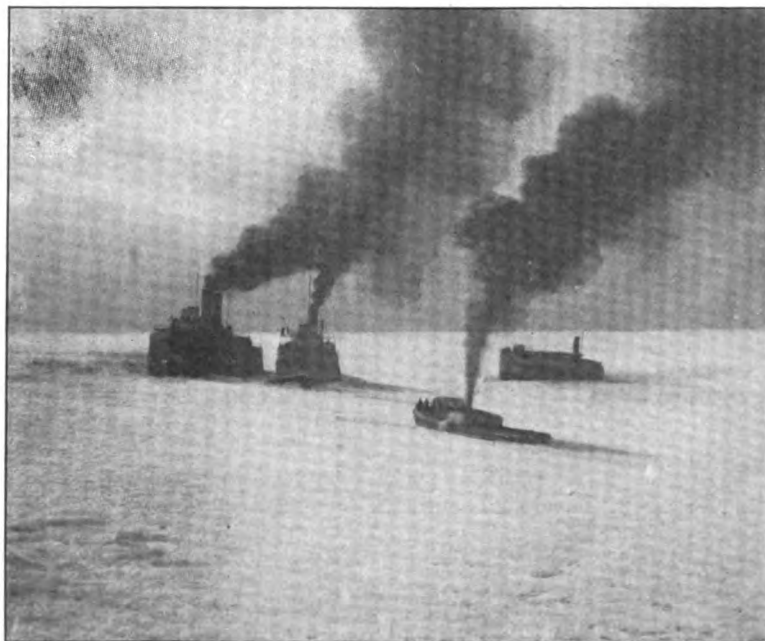
almost to the vanishing place. But shipments for last month were 6,297,500 bu., and there are still in head of the lake elevators the amount of 10,000,000 bu. of all grains, of which about 65 per cent is flaxseed.

There has been a better demand from the east for northwestern wheat the past week and several large lots of wheat were sold by Duluth firms to the east for immediate shipment. Vessel rates, which during last week got down to 1½ cents flat, were advanced on Monday, probably temporarily, to 1¾ on bulk carriers and remained at 1½ for line ships.

Every indication is for a large northwestern grain crop this year—acreage is increased materially and there is a considerable increase in both wheat and flax. The former



WINTER SCENE NEAR GRAND HAVEN.



CAR FERRIES IN THE ICE.

is all up and growing finely, though it was held back by cold weather early; the latter is not yet all in the ground, but should, and doubtless will be, in the course of a week. There is also a splendid progress on the far northwest crop, of the Canadian region. It is a fact somewhat surprising to those not conversant with climatic conditions in the northwest, that the wheat stand in the provinces of Alberta and western Assiniboia is further along now than that of Northern Dakota and Minnesota. It is also an astonishing thing that this vast crop is the product of ninety days; it is less than three months from the time of sowing the seed all through the northwest to the harvest with the grains ripened and out of danger of frost.

GROWTH OF THE LAKE STEAMER

The accompanying table will be found to illustrate the growth in the size of vessels in a most illuminating manner. The tables are taken from data compiled in the office of the Marine Review during the past ten years. Of all the vessels under construction during 1896 the largest was 426 ft. over all, while the average was about 350 ft. There are now under way some sixteen vessels for 1906 account with lengths varying from 500 to 550 ft. over all. This is exclusive of the four steamers for the Pittsburgh Steamship Co., which are to be 560 ft. over all. The vessels of ten years ago were all designed for a draught of 16 ft. whereas today they are designed for a draught of 18 ft. and better.

LAKE VESSEL CONSTRUCTION CONTRASTED FOR A DECADE.
1896.

Name	Overall	Keel	Beam	Depth
Crescent City.....	426	404	48	28
St. Paul.....	254½	238	42	26
Minneapolis.....	254½	238	42	26
Andrew Carnegie.....	420	400	48	28
Empire City.....	426	406	48	28
Starrucca.....	346	325	44	28
Venezuela.....	235	215	17	..
Niagara.....	281	296	42	19
Barge Carrington.....	366	352	44	26
Amazon.....	390	376	46	26
S. G. Thomas.....	378	366	44	26
Antrim.....	378	366	44	26
Jenney.....	378	366	44½	26

FOR 1906.

Name	Overall	Keel	Beam	Depth
Jones & Laughlin Co., Pittsburg.....	550	530	56	31
Jones & Laughlin Co., Pittsburg.....	550	530	56	31
Globe Steamship Co., Duluth.....	550	530	56	31
W. P. Snyder & Co., Pittsburg.....	550	530	56	31
C. L. Hutchinson, Cleveland.....	524	504	54	30
Capt. John Mitchell, Cleveland.....	436	416	50	28
Wilson Transit Co., Cleveland.....	524	504	54	30
C. L. Hutchinson, Cleveland.....	545	525	55	31
Capt. John Mitchell, Cleveland.....	545	525	55	31
Capt. John Mitchell, Cleveland.....	545	525	55	31
Gilchrist Transportation Co., Cleveland.....	534	514	54	31
Gilchrist Transportation Co., Cleveland.....	534	514	54	31
Hugh McMillan, Detroit.....	500	480	52	30
E. D. Carter, Erie, Pa.....	524	504	54	30
W. C. Richardson, Cleveland.....	500	480	52	30

VIGILANT SINKS A FISHING TUG

When the government fisheries cruiser Vigilant was built she was designed especially for the purpose of overtaking any fishing tug on the lakes; for that reason she was equipped with engines and boilers of extraordinary power. The Dominion government built her to succeed the Petrel which was of such slow speed that fishing tugs crossed the international line without much concern, knowing that they could regain their own waters at their convenience. The first tragedy has now occurred by reason of this encroachment. On Wednesday morning of this week Capt. Dunn of the Vigilant sighted the American fishing tug Grace M. off Lorain evidently engaged in fishing in Canadian waters. When the cruiser was sighted the tug started with full steam up. Capt. Dunn signalled her to slow down but she paid no heed. The Vigilant rapidly overtook her but the tug continued to dodge her. The cruiser fired several shots across her bow and again bore down on her. The tug then attempted to cross the Vigilant's bows and

though Capt. Dunn reversed his engines and backed with full steam the Vigilant caught the tug near the stern, capsizing and sinking her. The officers of the Vigilant did what they could to rescue the crew of the tug, but two fishermen, Martin Olson and Wm. Anderson, Lorain, were drowned. The rest of the fishing crew were saved. Capt. Galbraith of the Grace M. puts no blame upon the Vigilant for the accident.

CHICAGO GRAIN REPORT

Chicago, June 6.—The lake and rail shipments of past week were close to 3,000,000 bu. and although in excess of some 500,000 bu. over the previous week the proportion via lake routing was considerably improved. Charters from the previous report are unchanged at basis 1 cent per bushel Buffalo, Port Huron and Georgian Bay corn and 3¼ cents obtaining via Montreal routing. There is every indication of more active shipping demand and while rates may not be advanced materially, it seems safe to depend that nearby carriers will meet with ready shipping demand.

The distribution of weekly lake and rail shipments compiled by E. J. Fleming & Co. shows via all rail lines of wheat 133,000 bu., corn 207,000 bu., oats 466,000 bu.; via lake to Buffalo and other American points of wheat 75,000 bu., corn 920,000 bu., oats 220,000 bu., and lake routing to Canada points 664,000 bu. corn and 172,000 bu. oats.

Following are the comparative figures of weekly shipments and grain stocks:

	This week.	Last week.	Same week last year.
Wheat	223,821	188,050	429,024
Corn	1,796,375	661,149	1,885,578
Oats	833,426	1,623,797	857,778
Rye	20,237	17,348	14,719
Barley	26,363	32,423	40,265
	2,900,222	2,522,767	3,227,364

Shipments since Jan. 1, 1905:

	This week.	Same time last year.
Wheat	5,758,128	5,552,408
Corn	33,948,472	22,820,476
Oats	20,971,224	20,827,644
Rye	561,156	738,918
Barley	2,183,780	2,520,673

63,422,760 52,460,119

Stocks of grain in private and public elevators:

	This week.	Last week.	Same week last year.
Wheat	2,393,000	2,640,000	3,103,000
Corn	4,594,000	3,689,000	4,275,000
Oats	2,984,000	2,852,000	1,844,000
Rye	136,000	127,000	452,000
Barley	22,714	20,714	202,000
	10,089,714	9,328,714	9,876,000

Capt. Thomas D. Walker has been ordered to command the revenue cutter Morrill at Detroit. The revenue cutter Mackinac has been ordered to start from New Bedford to Sault Ste. Marie under command of John F. Wilde who will have charge of the maintenance of the navigation laws in St. Mary's river. Preliminary orders were issued to the Tuscarora at Milwaukee commanded by David A. Hall to include the life saving service.

There will be no criminal action taken against the three sailors of the steamer Morse who mutinied and refused to fill hoppers while the steamer was in Lake Erie. The federal authorities state that no complaints have been made and that they don't believe that any action will be taken against the men. The Lake Seamen's Union will investigate the matter thoroughly and if it is found the men are to blame their union books will be taken away from them.

Progress of our Merchant Marine

The following letter in the Cleveland Plain Dealer of June 3 was written as a comment upon an editorial that undertook to explain, and very rightly, that the sums spent upon the rivers, harbors and canals of the great lakes had been of direct aid to the shipping there and had been well and wisely invested:

NO VESSELS; WHY A CANAL?

Editor Plain Dealer—Sir: In your able editorial yesterday morning you bring forward the development of the lake marine and most justly say this marvelous development is directly due to the liberal employment of public money in the improvement of the channels between the Great Lakes, without which it would have been impossible. Further, you say, and most justly, that the entire country has profited by this development to an extent making the outlay insignificant by comparison and that no money spent by the United States has brought its people larger and quicker returns.

In contrast, the Associated Press this morning announces that Richard T. Farnham, a director of the Panama railway, is in England upon the mission of chartering ships for use of the commission in building the Panama canal, which are said to be not available in the United States.

We are the greatest exporting country in the world. We are paying out more in freights for ocean carriage than any other country in the world. That it may not be lost sight of, this sum exceeds \$200,000,000 annually. We furnish capacity to carry and earn some 9 per cent of this sum, and much of this in special service.

When the war with Spain came we had other emissaries of the United States abroad purchasing ships because we had no merchant marine upon which to draw. Likewise, we employed in our navy many foreigners because we had no adequate supply of seamen. Is it not time for the people to stop and think that the character of our exports is very rapidly changing? We once had only 7 per cent of our population in cities; we now have at least 35 per cent. You have recently published in your columns the fact that in percentage of exports we are steadily and rapidly increasing in world competitive manufacturers, as against breadstuffs and other raw materials.

Admiral Dewey has ascribed the Japanese naval victory to the superior seamanship of the Japanese, who had a nautical contingent of their population with the sea habit and sea experience, upon which to draw. The Russians had more and better ships, but lacked this source upon which to draw for men when the test came. This is Admiral Dewey's explanation of the fundamental reason for the Japanese naval success, in which he is doubtless in the main correct, whatever other circumstances may have combined.

When war came to us no patriotic citizen could or did cavil about going outside the country to purchase ships and enlist men to man them; yet you will hardly find one in the light of current events to agree that this is good or safe.

We have again the spectacle, but with the difference that this is time of peace, of our government, through the Panama railroad, going abroad; this time to purchase or charter ships for use in the government work for which all the people of this country are to be taxed a sum which may reach \$500,000,000. The only justification, whether sufficient or not, which

can be offered, and the pity of it lies most in justification, is the one put forward—that the American merchant marine fit for over sea trade has been permitted to go out of existence to the extent that, while the American nation is willing and capable of raising and expending \$500,000,000 to build a canal for the accommodation of ocean marine traffic, it has not vessels capable to even carry the material and machinery to be used in the construction of the canal.

Why, then, the canal?

Very truly,

HARVEY D. GOULDER,

Pres. Merchant Marine League.

June 2, 1905.

The National Association of Manufacturers at Atlanta, Ga., adopted the following resolutions in behalf of American shipping:

"Whereas, this association has annually for several years pled for the restoration of the merchant marine, now imperative and indispensable for our present and future commerce, our exports having reached nearly a total of a billion and a half and our imports over a billion and still increasing, and

"Whereas, our flag has almost entirely disappeared from the high seas, 92 per cent of our entire foreign commerce having been transported in foreign built vessels in 1903, and over 95 per cent in 1904, including naturalized steamships under American registration, and

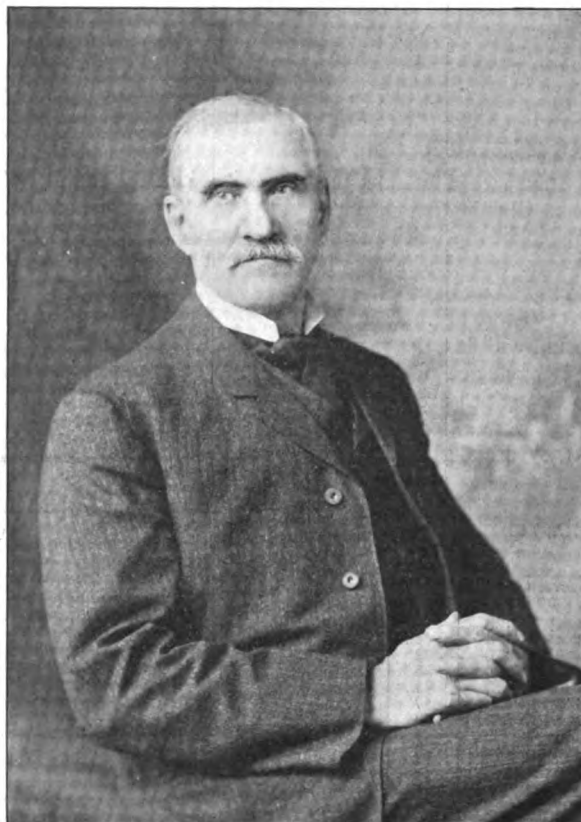
"Whereas, at the fifty-eighth congress a commission was created for the purpose of investigation and reporting upon the merchant marine necessities of the United States; therefore be it

"Resolved, that the National Association of Manufacturers commends the work of the merchant marine committee, heartily approves the passage of a bill for the upbuilding of American shipping in the foreign trade—for our passengers, mails and war service, and requests congress to promptly take action on such a bill, thereby making possible an American marine power for the present and future expansion of our great commerce and as an auxiliary to our navy."

The American Cotton Manufacturers' Association in annual meeting at Knoxville, Tenn., on May 11, last, adopted the following resolution:

"Resolved, that more American ships, to deliver the products of American factories, are indispensable to a full development of our export trade with foreign lands, and especially with South America and the Orient.

"Resolved, that the American Cotton Manufacturers' Association heartily commends the frank and thorough report of President Roosevelt's Merchant Marine Commission, and



MR. R. MCFARLAND

urges congress at the next session to enact vigorous legislation for the upbuilding of American shipping in over-seas trade, as a most effective method of commercial expansion. The American people must no longer be dependent upon the flags of England, France and Germany, their mercantile competitors, for the means of reaching the neutral markets of the world."

MR. R. MCFARLAND'S VIEWS.

Editor Marine Review, Sir: I have been interested in the United States merchant marine, as master and owner for the past forty years, and will write you some of my ideas in regard to the betterment of same which you are at liberty to use in any way you think proper. I see that some parties have advocated giving American registers to foreign-built ships. This, I believe, is free trade run mad. It would be hard to imagine folly beyond this. It think it has been generally conceded by all parties well informed in our merchant marine affairs, that the only possible way in sight to improve the situation is through the intervention of the general government. My personal opinion is that a subsidy is the quickest and the most direct way to relieve the situation, providing it should be wisely applied to American ships while operating in the foreign trade, followed later by a discriminating duty on imports in American ships, providing some way can be devised such as will not provoke reprisals from foreign nations.

The fast mail ships which could be used as auxiliary cruisers in time of war should be liberally considered, but the large slow ships should not be forgotten as they are what we must depend on for the transportation of merchandise in competition with foreign ships, and also for army transports in emergencies. It will be remembered that at the commencement of our war with Spain there was not a score of ships flying the American flag, which were proper and available for this service. This is certainly very humiliating to a great nation.

It would appear to be advisable in connection with whatever there may be done in this line that the American seamen be included in some way. I see that some of the officers of the Seamen's Union have advocated the passage of laws to allow seamen on American ships to leave such ships in any port as they may desire; whatever relief is to come to the seamen is certainly not in such laws. Seamen should be obliged to fulfill their lawful and proper contracts with masters and owners. I believe it would be a terrible mistake for Congress to pass a subsidy law for shipping with the condition that none but American seamen be employed, as such provision would give the managers of these unions, power to make regulations such as to paralyze the operations of these ships. I believe this matter should be left to the election of the masters and owners. But, if a portion of the subsidy should be paid to American seamen while serving on American ships in the foreign trade as a monthly wage, conditioned on ability and good conduct of the seamen while employed, I believe this would be more beneficial to the seamen than all the Bethels in the country. It would also curtail the power of the unions which they now often use to the great detriment of the general service. The seamen are lead to believe that they can commit almost any act of insubordination; and on arrival in port, that the union will take up their case and push it to a favorable conclusion, no matter what it may be. This makes much trouble on board ships employing men whom these unions control, and creates a prejudice against these men. Therefore comes the employment of Chinese, Lasacars and other Asiatics. If something is not done to correct the baneful influence of these seamen's unions, every American ship will not only employ these foreigners for seamen, but fire-rooms and stewards' departments will also be supplied with them. By giving these men a portion of the subsidy, it would be about as much help to the owner to operate his ship as though he had the money direct, and would be a great factor in improving the general morale of the seamen. This bounty should be given only to American born seamen or parties who have

been naturalized for a number of years. Such men should be classed as a naval reserve, subject to be called on for service in emergencies. I should like to see this matter properly put before congress.

Respectfully yours,

R. MCFARLAND.

Everett, Wash.

LLOYD'S REGISTER OF AMERICAN YACHTS 1905

With the opening of the yachting season comes the new volume of the American Yacht Register for 1905, published by Lloyd's Register of Shipping. Though only in its third season, this book is already well known in all parts of the United States and Canada as the standard work of reference for yachtsmen.

The past year has wrought more than the usual number of changes in yachting history; severe storms in several localities have wrecked many yachts, and the growing popularity of the gasoline motor has led to the conversion of many sailing craft to auxiliaries. Notable among these are the cup defender Mayflower and her predecessor by a year Pricilla, with many of the smaller yachts designed by Burgess and Cary Smith. With the change to auxiliary power there comes very frequently a change from cutter to yawl rig, and while a few old sailors are found like to owners of Pappoose and Minerva who deride the allurements of power, most of the old fighting forty-footers and thirties are now to be found cruising as auxiliary yawls.

A still greater change is due to the fact that the early Burgess boats and their contemporaries have just about reached their majority, and though still seaworthy and serviceable they are rapidly finding their way into trade. The 40-footer Chispa and the 46-footer Mineola have been sold for pilot service in Southern and West Indian waters, the 30-footer Kathleen has been broken up, and others have been sold or are on the sale list at prices which will take them into trade.

All of these changes are recorded in the Register, a book of 542 pages with fifty-nine colored plates of club Burgess, national ensigns and owner's private signals, the latter to the number of 1,440. The total number of yachts listed is 3,389, of which 2,130 are sailing craft and 1,259 are propelled by steam or some other power. The tendency of the times is shown by the fact that while but a year ago the sailing yachts made 67 percent of the total, this year they make but 62 percent.

Among the power yachts the new gasoline cruisers in all sizes from 30 to 80 ft. figure conspicuously, this type of craft being deservedly popular from its great utility, its adaptability to all waters, and the comparatively low cost of running.

In addition to the main list of yachts, giving the most complete particulars of hulls and engines, there are lists of signal letters, of former names of yachts, of builders and designers of the United States and Canada, and a very complete list of over 3,100 yacht owners, with addresses and clubs, as well as the yachts owned by each.

The Register is published from the New York office of Lloyd's Register of Shipping, 15 Whitehall street, New York, the price being \$7.50.

Inquiry at the war department into the condition under which eight small revenue cutters are being constructed by an English concern near Canton for the Philippine government develop the fact that these boats were ordered when Secretary Taft was governor of the island. He was authorized to give the order by Secretary Root who at that time was secretary of war. The considerations in favor of the Chinese plant were that the boats could be more cheaply built there and as they were intended merely for river service in the Philippines they would not be subjected to the long delay of passage from this country.

WESTBOUND SHIPMENTS LIGHT

Buffalo, June 5.—It is probable that May did not quite come up to the expectations of vessel owners in the amount of freight moved and yet a survey of the situation is not certain to fix the difficulty just where it is likely to be looked for. It is not that there is so little moving so much as that there is so much tonnage to move it. Buffalo used to boast that there was no port in the world where such a percentage of the fleet carried cargoes both ways and though the same may be true now it is a fact that most of the vessels now go out light. This means for the most part that the new conditions of trade are joining with the new size of the vessels in making it impossible to keep up the proportionate amount of westbound freight that there used to be.

That is to say that the amount bound east has grown enormously of late seasons, while the amount for the west has pretty nearly stood still. If there was a normal amount of grain and flour to go this change of proportions would be still more noticeable. There is always more or less complaint that the southern routes have robbed the lakes of east-bound business, and while there is some truth in the claim the decrease of grain to move furnishes the main reason for the falling off in lake business in this direction.

At the convention of the National Grain Dealers' Association in Niagara Falls last week a very long and insistent re-

port was made on what was called the decadence of the business, where an impoverished soil, costing \$50 to \$75 an acre, worked by men at \$2 a day was now pitted against a virgin soil of 50 years ago, costing \$5 an acre and worked by men

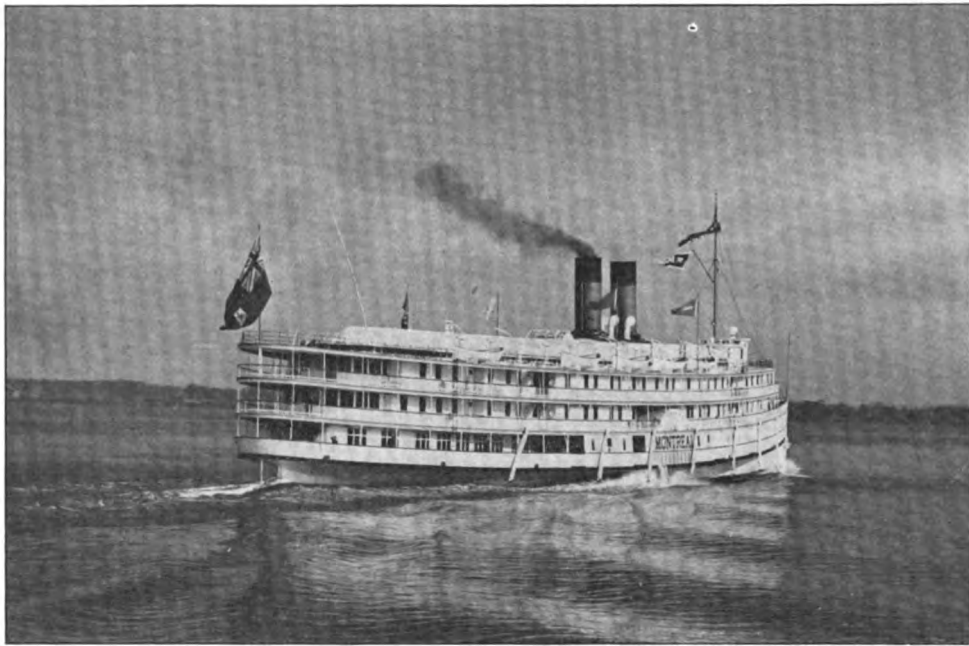
at 50 cents a day. It was held that the crest of the wave had been reached and that there was need of the grain dealer becoming more than a mere middleman. He should assist the farmer by introducing better cultural methods, as it was certain that the crops could be increased 50 per cent on the same acreage. This accomplished and the old surplus would return.

No other course would accomplish the desired result.

There is much complaint from the lumber carriers, who appear to think that there has not only less lumber been brought down so far this season than common, but that the shippers are now indifferent to them, having obtained a few cargoes, which

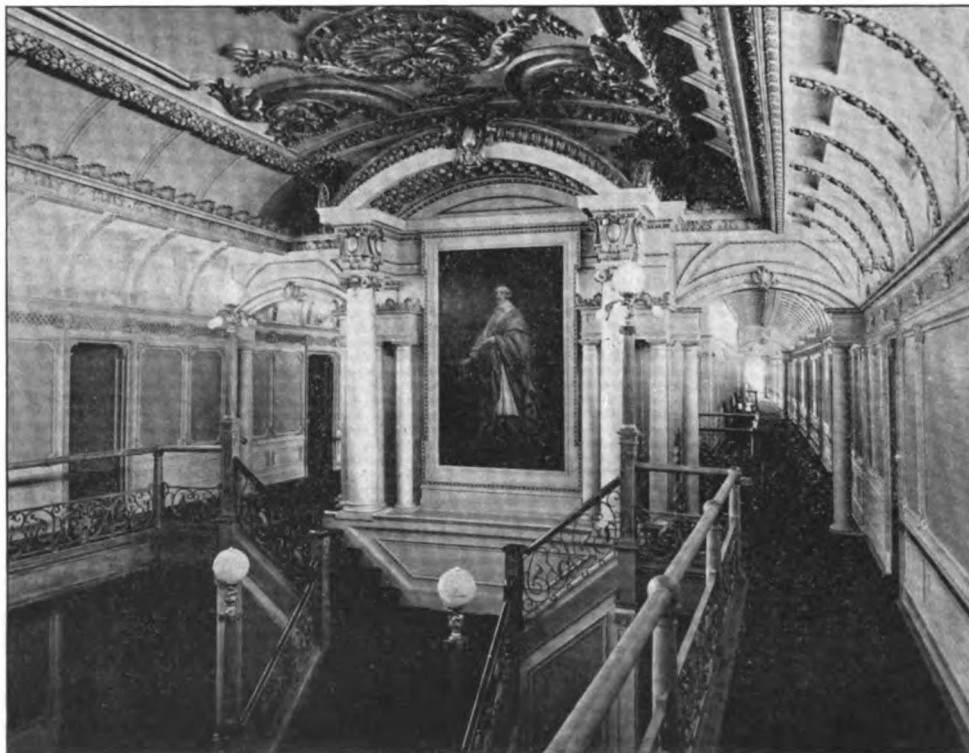
will enable them to go till fall without receiving much more. As to the amount to be moved this month and mid-summer generally it does look dubious, but at the same time it is a fact that Buffalo has received 20,000,000 feet and the Tonawandas have already exceeded 60,000,000 ft., while last season was cut down to next to nothing up to the first of June by the strike.

It is after all the size of the fleet that menaces the general business on the lakes, and especially of the small vessel. A Buffalo vessel owner, long in the lumber trade, who was lately asked about one of his vessels that was still tied up



THE NEW STEAMER MONTREAL OF THE RICHELIEU & ONTARIO NAVIGATION CO.'S FLEET.

[For description see *Marine Review*, June 1, 1905.]



GRAND STAIR CASE IN THE NEW STEAMER MONTREAL.

business on the lakes, and especially of the small vessel. A Buffalo vessel owner, long in the lumber trade, who was lately asked about one of his vessels that was still tied up

here, said that it made very little difference whether he lost money in that way or by paying it out for seamen's wages. He was bound to lose it somehow. Other lumber barge owners say that he was about right. The Tona-wanda lumber-barge owner is situated better than most of those at this port, as the rule there is that the lumberman owns his tow and does his own carrying. At least some of the yards there are not seeing the end of the early season yet, as one owner said a day or two ago that he was sending his boats up light this trip to get them back as soon as possible, as he needed the lumber. It is a fact that the lumber so far brought down to our ports has not filled the yards up much.

On the other hand the hard coal is piling up some at upper-lake ports and may not move very actively again right away. The leading ports are not taking much of it just now, but some of the shippers have been driving something of a trade by selling their coal in small ports, some entirely new ones appearing on the list lately.

I see that the Canadian scheme of connecting Lake Ontario with the Georgian Bay is on again, so actively that it has been made the subject of a recent consular report to this government, which goes elaborately into the details of passage deepening, cross-country digging, big lift locks and ship railways required by the enterprise, enough in itself to scare anything but government capital out of it. A Buffalo vessel owner, asked about it, said he supposed the plan was "feasible" from an engineering standpoint, but that was all. He did not think it worth the while to go into details, especially the fact that all Lake Ontario traffic must always be largely local, on account of the difficulties offered by St. Lawrence river, which still continues to drive good fleets, American as well as Canadian, out of the trade, even after the route to Lake Ontario has been managed.

JOHN CHAMBERLIN.

GROWTH OF LAKE COMMERCE

Any number of illustrations may be found to picture the rapid growth of lake commerce, but probably the most striking of all is the canals at Sault Ste. Marie. It has been the history of improvements at Sault Ste. Marie that they have become antiquated almost before they were completed. It was clearly evident that the Weitzel lock would not be able to care for the growing commerce before it was finished and Gen. Poe set out to build a lock which would adequate for all time. He built the largest lock in the world, 800 ft. long and 100 ft. wide on the supposition that it would be possible to always lock three or four vessels through at the same time. Water had scarcely been let into the lock before it was realized that not more than one modern steamer could be locked through at one time, so rapid had been the growth of vessels.

The Canadian government also built a lock which it was supposed would be sufficient for an indefinite period, but a vessel is now on the stocks, the W. G. Mather, which when launched will be unable to pass through the Canadian lock at all. The Canadian lock is 900 ft. long and 60 ft. wide. The beam of the Mather is 60 ft. As it is a foregone conclusion that vessels of similar or even greater beam will follow, this great artificial waterway will be altogether useless to some of the modern steamers. This feature is regarded as unfortunate by the careful vessel owner who knows that the actual time of transit through the Canadian canal is one-third less than it is through the American channel. This condition, of course, is due to the fact that the American channel is the more popular and passes more than 90 per cent of the tonnage. Nevertheless, using a fleet of fifteen vessels as a unit and utilizing the Canadian channel exclusively, the fleet would be enabled to put in one additional trip for one vessel during the season of navigation.

Great sums of money have been expended on the canals at Sault Ste. Marie but greater sums yet will have to be expended to make them really adequate to accommodate the great growth of lake commerce. It is not generally known that

this commerce, the greatest in the world, in its transit from Lake Superior to Lake Erie passes through more miles of artificial waterway than is contemplated in the construction of the Panama canal. But it is nevertheless true. The artificial channels of the great lakes are forty-five miles in length, which is about five miles longer than the proposed cut across Panama.

FIVE STEAMERS TO BE LAUNCHED THIS MONTH

During the last week in June the American Ship Building Co. will launch a heavier tonnage than it has ever launched in its history. The four steamers which it will launch will have a carrying capacity of about 40,000 tons. The principal event will be the launch of the steamer Wm. E. Corey, building for the Pittsburg Steamship Co. and named in honor of the president of the United States Steel Corporation. She will go overboard from the South Chicago yard on June 24 and the event will be marked with ceremonies quite out of the ordinary. The sister steamer George W. Perkins will be launched on June 26 at the West Superior yard. As the Gary has already been launched this will leave only the Frick on the stocks. These vessels are the largest ever built on the great lakes, being 560 ft. over all, 549 ft. keel, 56 ft. beam and 31 ft. deep. The Gary has gone into commission and has already broken the cargo record on the great lakes.

The steamer Wm. A. Rogers building for the Niagara Transportation Co. will be launched at the Lorain yard on June 27. She is 545 ft. over all, 525 ft. keel, 55 ft. beam and 31 ft. deep.

The steamer W. A. Paine which is building at the Cleveland yard for Capt. Charles L. Hutchinson and others of Cleveland will be launched June 29. The Paine is 500 ft. over all with a carrying capacity of 8,000 tons. These vessels will go into commission about August 1.

The package freighter Superior building for the Western Transit Co. will be launched at the Ecorse yard of the Great Lakes Engineering Works on Saturday next.

A REMARKABLE RECORD

The Cleveland & Buffalo Transit Co., Cleveland, has just established a remarkable record for steamboat operation on the great lakes and it will probably be many a day before it is equaled. The log record of Capt. Hugh McAlpine, of the steamer City of Erie shows that on the nights of May 31, June 1 and June 2 his steamer passed the steamer City of Buffalo, going in the opposite direction at exactly 1:12 a. m. The log records of Capt. W. H. Smith, of the City of Buffalo show that he passed the City of Erie at exactly 1:12 a. m. on the same nights. This comes about as near perfect operation of steamboats as it is possible to get. The result shows that both boats must have been exactly on time, that the clocks on both boats must have been exactly alike and the observation from both boats taken at the same moment. Considering that each boat was making twenty miles an hour and that they were consequently passing each other at the rate of 40 miles an hour, the result shown is little less than remarkable. General Manager T. F. Newman, of the C. & B. line has complimented the captains and engineers of the boats on the showing they have made on the three consecutive trips.

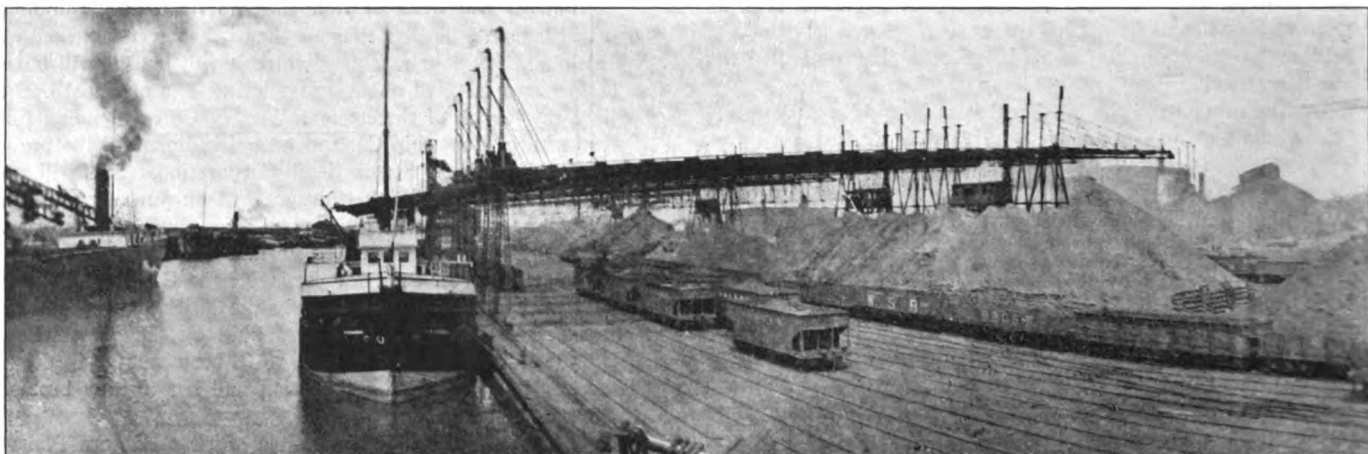
Child, Bates & Co., Citizen's building, Cleveland, have issued a booklet devoted to the subject of steel steamship bonds. The booklet gives a very creditable description of the bonding system under which the modern steel freight steamers of the great lakes are being built. Abundant evidence is given in the book to show that the steamship bond is a most desirable security. Accompanying the booklet is a circular offering for sale bonds upon the steamers Hoover & Mason, James E. Davidson, Yosemite, John B. Cowle, Francis Widlar, Edwin F. Holmes and F. B. Squire.

ERIE'S DOCK AT CLEVELAND

In a little magazine issued by the Erie railway for the benefit of its employes there is published in the June number a description of the Erie's dockage facilities at Cleveland. The Erie was originally known as the Mahoning Valley railway which, through a succession of changes, became Atlantic & Great Western, then "Nypano" and finally the Erie. The article says:

"The Erie finds herself today with almost priceless jewels in

harbor known as the old river. Here the greater part of the lake traffic is accommodated and especial provision made for the handling of great quantities of coal and ore, a wise provision, when one comes to reflect upon the fact that Cleveland is the natural water gateway for Pittsburg and the wonderful western Pennsylvania district. Erie is the shortest route between Pittsburg and Cleveland, and that fact is of the greatest value to this railroad. Its double track connection between the cities is already greatly crowded with freight busi-

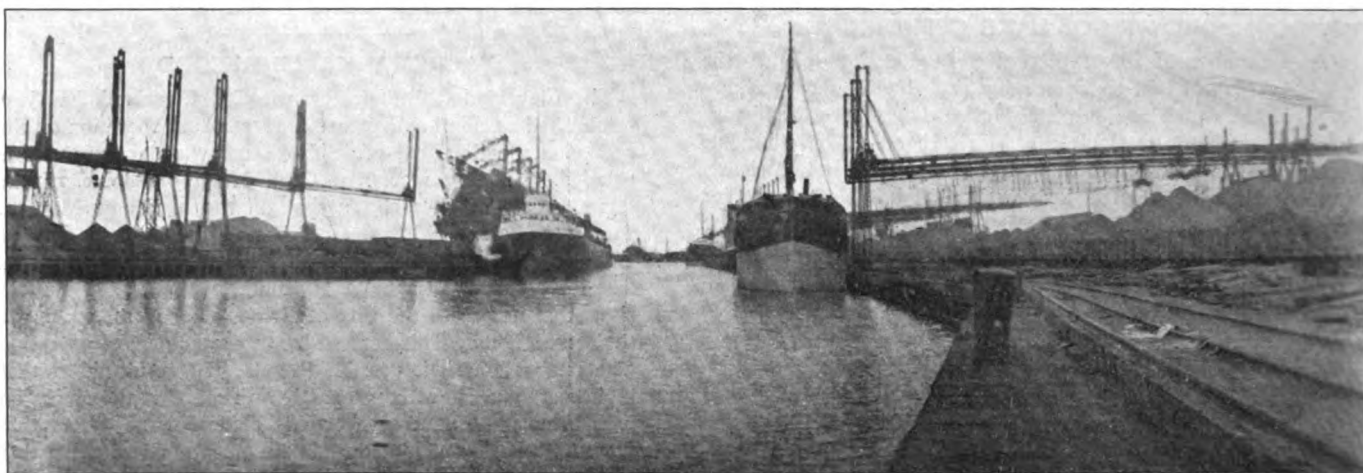


THE ERIE RAILWAY'S ORE DOCKS AT CLEVELAND.

her Cleveland terminals. She far exceeds the dockage facilities of the other railroads entering this important point, and only recently she has purchased another 1,000 ft. of dock from the American Ship Building Co. Her previous holdings were more than 11,000 ft., an enviable possession. Yet this two miles and more of docks in the choicest part of Cleveland's harbor are more than necessitated by the great traffic that

ness, and a frequent and attractive passenger service meets with a heavy patronage. The docks are equipped with great machinery for handling coal and ore.

"Much of it is used in unloading the ore which is brought in great quantities down the lakes from the Superior mines and then reshipped to the great steel plants in the valley. The equipment that has been used to bring the bituminous coal to



PENNSYLVANIA'S DOCKS ON THE LEFT.

passes through this city at all seasons of the year. It reaches its height, of course, in the season of lake navigation. Some idea of this traffic may be garnered from a glance at these figures, which tell of Erie's tonnage at Cleveland during the twelve months from April, 1904, to March, 1905, inclusive. During that time Erie brought to this city 3,754,012 tons of freight and carried outbound 1,841,437 tons, making an aggregate of 5,595,449 tons—a very respectable amount. And yet last year was decidedly an off year. There was a big long strike in marine circles which cut tonnage away below normal figures during the early summer. This year, it is agreed, will see such a freight traffic as Erie workers in and about Cleveland have never before experienced.

"The Erie's largest docks are in that choice part of the

THE ERIE'S DOCKS ON THE RIGHT.

Cleveland from the Western Pennsylvania district to be shipped by water to many western points is thus economically used in the return by handling ore.

"The gondolas are brought direct to the coal dock in the first instance and are then hoisted to a great height, trucks and all, the giant crane first lifting the heavy car to the proper position and then quickly turning it over, as a mother turns over her small boy for a spanking. The coal is instantly dropped into the hold of the waiting vessel, the car returned to the rails and sent to the ore dock to be filled with Lake Superior iron.

"These unloaders, which, like many and many another piece of mere machinery, seem more human than mechanical, are in duplicate. Under ordinary conditions they can unload 500 cars

of coal every day. The No. 1 machine handled the biggest tonnage of coal of any machine on the great lakes during the season of 1903. The coal was transferred at an average cost of 4 cents a ton, including the cost of maintenance and depreciation of the plant.

"The ore which is loaded into the strings of waiting gondolas is handled by a machine, dubbed the 'rapid unloader.' It consists of a series of three 7-ton buckets, which take the ore from the hold of the vessel at the dock and drop it into pockets, from which it is easily chuted into the cars. Under favorable conditions it can handle 600 tons of ore an hour.

"The ore dock is further equipped with twenty-seven Brown hoists, which handle 1-ton buckets, each of which is capable of handling thirty-four tons of ore an hour. These hoists will deliver either to waiting cars or to the storage pile upon the docks. More than 200,000 tons of ore can be stored on this dock at a single time.

To further the facilities of these great docks it was found necessary to go eight or ten miles back into the country and so the great classification yard at Randall was recently constructed. It is between two and three miles in length, and has the enormous capacity of 3,128 cars. This yard represents the most recent ideas in yard construction. It is fitted so that the trains may be shifted on the hump or gravity principle, and when one takes into consideration that Randall yard was chiefly designed as a classification and storage place, the advantages of a quick switching system become manifest. All the sorting and classification are now done at this point, both for arriving and departing freights.

"In addition to its several miles of sidings, Randall yard has still another ore storage plant. The wooden trestle erected for this purpose at that point is more than 2,000 ft. long and 50 ft. high. It is possible to store 300,000 tons of ore within it."

ITEMS OF GENERAL INTEREST

Oxner & Story, Essex, Mass., launched last week a schooner for the Eastern Fishing Co., Boston, Mass.

A fine sailing boat for Morton F. Plant was launched from the yard of C. F. Ferguson, New London, Conn., last week.

Wm. A. Engerman, Marrowmass, Conn., is having a three-masted schooner built for service on the Connecticut river.

Stillman Saunders, Saunderstown, R. I., is building a ferry being rushed on launch construction.

The Southern Pacific Co. is receiving bids for the construction of two new steamers for the New York and New Orleans service.

Considerable impetus has already been given by New York papers to the movement of celebrating the centennial of Fulton's Clermont in 1907.

Oxner & Storey, Essex, Mass., have contracted to build a knock about schooner 125 ft. long, 24 ft. beam and 11 ft. 6 in. deep, for T. A. Cromwell, of Boston.

The British admiralty has invited engineering firms to make tenders for the construction of turbine machinery for one of the new battleships to be built in the government dock yard. The specifications require the engines to develop 23,000 H. P.

The tug Iolandi was launched from Pasquin Ucci's ways, North Beach, Cal., for the Paladina Fish Co., North Beach, last week. The tug is 82 ft. long, 18 ft. beam and 7 ft. deep and is equipped with engines of 150 H. P., to burn oil as fuel.

Bids were recently opened at San Francisco for the transport Sheridan. The bids were as follows: Union Iron Works, \$49,750; Risdon Iron Works, \$54,900; W. A. Boole & Son, \$56,847; Dyer Bros., \$56,000; The Dundon Co., \$59,000.

Richard F. Keough, Border street, E. Boston, will build the hull and Bertelsen & Petersen of East Boston will install the machinery in a large wooden tow boat for the Lewis Tow Boat Co. of Boston.

The Maryland Steel Co., Sparrow's Point, Md., will build a lighter to cost \$50,000 to attend the four big ferry boats which were recently built for the Hoboken-New York ferry service.

Wm. Thomson, Orillia, Ont., has had constructed for use on Geneva Lake a steamer 82 ft. over all and 16 ft. 4 in. beam. The hull was built by the Davis Dry Dock Co., of Kingston, Ont., and the machinery by the Bertram Engine Works, Toronto.

The International Steamship Co. has been organized at Portland, Ore., by Rhea Bronson, Ira Bronson, N. A. Holt, J. D. Leonard and W. W. Reed, with a capital of \$250,000. The purpose is to operate a steamship line from Oregon to Alaskan ports.

The schooner yacht Atlantic was the first to cross the Atlantic in the race for the Kaiser's cup. Her time was 12 days, 4 hours. The Apache owned by Edmund Randolph of the New York Yacht Club was the last to cross, her time being 18 days, 17 hours and 5 minutes.

John T. Scott, formerly superintendent of the Union Iron Works, San Francisco, Cal., is now associated with Robert S. Moore, the former vice-president of the Risdon Iron Works, under the name of The Moore & Scott Iron Works. The new firm will engage in marine repairs.

The new turbine steamer Virginian of the Allan Line on her first trip to Montreal made the passage from Moville to Rimonski in 6 days, 13 hours and 30 minutes, about two hours faster than has ever been done by any other steamer over the same course, notwithstanding the fact that she encountered strong westerly winds and heavy ice.

Julian Bedford Shope, of the New York bar, has made a compilation of the general maritime law with reference to collisions at sea. It goes very thoroughly into the rules and regulations governing the navigation of vessels and is an invaluable exposition of the laws and general decisions governing the liability for collision.

Lieut. Com'dr Robert E. Peary has completed his plans for another effort to reach the north pole and will sail on the steamer Roosevelt from the Maine coast on June 15 for New York where he will take on provisions. He will start north July 4. His only stop will be at St. Johns, Newfoundland, where his supplies will be replenished. The rest of the journey will be governed by circumstances.

A four-masted schooner to have a carrying capacity of 500,000 ft. of lumber, and for which Mattson & Drake of Philadelphia are preparing plans, will be built by the Merrill-Stevens Co., Jacksonville, Fla., for Messrs. John and Rudolph Baizley and the Cook-Cummer Co. of Baltimore. As soon as this vessel is completed, work will be started on another schooner for the same owners.

Steam pleasure craft are very scarce on the bay of San Francisco. The largest and handsomest pleasure boat having steam as its motive power is E. W. Hopkins' El Primero, which is enrolled in the San Francisco Yacht club but, though she is put into commission at the beginning of each season, she has not been on a cruise for the past two or three years. Robert Hickmott has a steam launch and there are one or two others.

A claim has been filed in the court of claims by the City Trust Safe Deposit and Surety Co., Philadelphia, against the United States for damages amounting to \$425,000 arising from the building of the new dry dock at the Charleston navy yard. O'Brien & Sheehan of New York were the contractors but after having completed a large part of the work asked the City Trust Safe Deposit & Surety Co. as their surety to complete the contract. The contention of the surety company is that the work was seriously delayed by changes in plans and failure on the part of the government to provide material promptly.

AROUND THE GREAT LAKES

The passenger steamer Frontenac which has been placed on the Cleveland-Lorain route made her first trip this week.

The steamer Tashmoo of the White Star Line will go on her regular run from Detroit to Port Huron on June 17.

The excursion steamer Columbia was in the Detroit Dry Dock last week preparatory to going on the Bois Blanc route.

The threatened coal strike of the coal heavers at Milwaukee has been averted.

The steamer Lily whose upper works were burned and her machinery damaged at Toledo recently has been taken to Marine City where she will be rebuilt.

The little passenger steamer Mascotte, familiar on the Detroit river and vicinity, has been chartered by Sandusky parties.



CAPT. RALPH J. LYONS WHO WILL COMMAND THE NEW STEAMER LYMAN C. SMITH.

The Zenith Dredging Co. of Duluth has a contract to remove 36,000 cubic yards of earth from the channel at Ontonagon and has started work.

The old Milwaukee fireboat Cataract has been towed to the plant of the Manitowoc Dry Dock Co., Manitowoc, Wis., where she will be rebuilt.

Robinson Bros., lumber dealers of North Tonawanda, have purchased the interest of George Ayan of Saginaw in the barge Our Son.

The machinery of the steamer Admiral was disabled in Lake Huron last week and she was compelled to return to Detroit for repairs.

The proposition made by some marine men to widen the Milwaukee river has been pronounced impracticable by the government engineers, as it would cost too much money.

The Milwaukee Western Fuel Co., Milwaukee, Wis., will replace its wooden unloading apparatus at its river dock on Commerce street with two modern steel electric crane hoists.

The steamer Rhoda Emily last week met with an accident to her machinery and was repaired at the plant of the Great Lakes Engineering Works, Detroit.

The steam sandsucker George T. Burroughs of Windsor was sunk in collision in the St. Clair river near Joe Bedore's last week.

After the steamer Gary had discharged her record breaking cargo at South Chicago she was placed in dry dock for repairs. The steamer had developed a leak due to the fact that she had been rushed into commission before the finishing touches had been placed upon her.

The McMorran Wrecking Co. of Port Huron has received the contract for raising the steam barge J. E. Mills sunk in Lake Erie May 4.

The story published in a Cleveland newspaper that the Pittsburgh Steamship Co. is about to let contracts for seven 10,000-ton steamers is without foundation.

The steamer Alga recently crushed by the steamer Saunders and Clarion in the St. Clair river will be repaired at Marine City.

Masters of vessels running between Windsor and Detroit are complaining that the Canadian contractors engaged in dredging are dumping the debris in Canadian waters in such a way as to form obstruction to navigation.

The work of fitting out the new steamer Lyman C. Smith at the plant of the Detroit Ship Building Co. is progressing so satisfactorily that she will be ready for her maiden trip by June 17.

The Jones & Laughlin Co. of Pittsburg have notified the Great Lakes Engineering Works that the two new steamers which they are to build for the company will be named B. F. Jones and James Laughlin after the original founders of the company.

Wm. Livingstone, president of the Lake Carriers' Association, has inspected the anchorage, water signal station and other improvements installed at Elliott's Point, Lime Kilns and Bar Point, and it well satisfied with the results attained. For the present vessels may load 18 ft. 9 in. at the Lime Kiln crossing.

The Erie & Buffalo Transportation Co. has elected the following officers: J. J. McLean, president; T. F. Noble, treasurer; G. R. Glick, secretary. Major R. J. Saltsman and Leo Schlaudecker, with these officers comprise the board of directors. The company's steamer Keystone will do a general passenger and freight business between Buffalo and Erie.

Nine tenders were received for dredging to be done at Fort William and Port Arthur by the Dominion government. A. F. Bowman of Southampton received both contracts on a bid of 12 cents per cubic yard.

The steamer Fairmount now on her way down from Lake Superior with iron ore has quite a trip ahead of her. After unloading at Sydney, Cape Briton, the Fairmount will sail around the island of Newfoundland to Pilleys Island to load iron pyrites for Washburn. Capt. Frazer, a salt water mariner, will accompany the boat as pilot.

The new Middle Island light of the fog signal station went into commission last week. Patrick Garrity, light keeper at Presque Isle has been appointed keeper for the new station with George J. Hassett and James Irwin as assistant keepers. John Garrity, assistant keeper at Standard Rock light has been transferred and promoted to keeper of Presque Isle light. The new station was completed last fall at a cost of \$20,000.

Major Charles L. Potter, government engineer of Duluth, opened bids last week for constructing 601 ft. of pier at Port Wing, Wis. Following were the bidders: Whitney Bros. Co., Superior, Wis., \$14,100; A. G. Osman & Co., Duluth, Minn., \$14,982; Powell & Mitchell, Marquette, Mich., \$19,596.29.

The bill in the New York legislature appropriating \$50,000 for continuing the improvement of Erie basin has been killed.

By the purchase of an acre and a half of land on the western side of the Kinnickinnic river at Milwaukee, the United States government has taken the first step towards the erection of a permanent dock and lighthouse depot there. The land was bought from Louise F. Bogel and \$20,000 was paid for it. A dock 120 ft. long and a large and substantial build-

ing containing the shops and other parts of the lighthouse depot will be erected.

The iron tug Peter Smith which is being fitted to tow the Rebe Richards after lying idle for two years, has had a unique record. The Smith was built at Glasgow during the civil war for use as a blockade runner but was captured on her second trip. She was used for various purposes by the government for several years and latterly found employment in towing rafts of Canadian logs to the mills of the Saginaw valley. Four years ago she went to the Atlantic coast to tow coal barges, but the business did not pay and she returned to the lakes.

The fine of Capt. Patrick Griffin of the steamer Western Star which was levied against him and collected for running his steamer shorthanded during the strike of the Masters and Pilots' Association has just been remitted by the treasury department. The Western Star sailed from Cleveland upbound without mates. The steamer was intercepted by the customs authorities at Detroit and her manifest confiscated and held until the fine was paid. Fines were levied against the other masters but they were all remitted with the exception of Capt. Griffin's who had to wait nearly a year for his money.

The Great Lakes Dredge & Dock Co., Chicago, Ill., have taken over the entire business of the following companies: Chicago & Great Lakes Dredge & Dock Co., Lydon & Druse Co., Houseer & Lutz Towing & Dock Co., Duluth Dredge & Dock Co. The officers are: W. A. Lydon, president; T. C. Lutz, vice-president and general manager; Walter Cahill, second vice-president; W. J. McCarthy, secretary; H. C. Wild, treasurer; George H. Jackson, assistant secretary and treasurer; D. McCarthy, general superintendent.

Major J. G. Warren, government engineer with headquarters at Milwaukee, recently opened bids for improving the harbor of Waukegan, Ill. Bennett & Schnorbach of Muskegon, Mich., bid \$89,476.02 for white pine and \$88,859.42 for Douglas or Oregon fir or Norway pine. Edward Gillin, Racine, Wis., bid \$71,110.87 for using Douglas or Oregon fir timber. The Great Lakes Dredge & Dock Co. of Chicago bid \$60,633.76 for using white pine or \$68,400 for using Douglas or Oregon fir or Norway pine.

The two freighters recently ordered by the Gilchrist Transportation Co. from the American Ship Building Co. will be constructed at the West Bay City yard. Superintendent Tinn of the West Bay City yard now announces that additional machinery for the yard has been ordered. This new work will keep the yard employed well throughout the year.

Many of the large merchandising houses with warehouses on the river at Chicago are planning to operate transfer boats to avoid the delays caused by the strike of teamsters. A number of companies already own small lighterage vessels and the teamsters strike has added greatly to the probability of the lighterage business on the river.

Fred Schwartz of Detroit, chief engineer of the steamer Presque Isle of the Cleveland Cliffs Iron Co.'s fleet, was obliged to leave the boat when she passed Detroit yesterday on account of illness. He has been suffering from stomach trouble for some time. Thomas Durkin, who is looking after the new steamer W. G. Mather, building at the yards of the Great Lakes Engineering Works for the same company, relieved Schwartz.

Bids were opened at Chicago last week for the construction of a wooden hull for the fireboat to take the place of the Yosemite, now laid up at South Chicago. The new boat will be of the same size as the old one and when completed will be equipped with the engines, boilers and pumps of the Yosemite. The lowest bidder was the Empire Ship Building Co. of Buffalo which offered to complete the boat in ninety days for \$13,000. Rieboldt & Wolter of Sturgeon Bay, Wis. bid \$14,700 and the Ship Owners' Dry Dock Co., Chicago, bid \$14,900. The new boat will be 105 ft. over all, 95 ft. keel and 26 ft. beam.

SURVEYING FOR THE NEW SHIP CANAL

A meeting of the board of directors of the Lake Erie & Ohio River Ship Canal Co. was held in Pittsburg last week and encouraging reports were made of the progress of the surveys. Regarding the work President John E. Shaw said: "The work of constructing the canal began on May 4, when the charter was granted and the engineers began their surveys. The surveys made under the supervision of the Pennsylvania Ship Canal Commission in 1889 and under the provisional ship canal committee in 1893 will be of much assistance. It is necessary, however, to have the ground gone over most thoroughly by the company's own engineers. They will be occupied for several months in completing their location surveys and when this is accomplished a choice of routes will be available. With the work of the engineers before them the directors will be in a position to select the best routes for the main line of the canal and its branches.

"The location surveys will have to be followed by others before the contracts for excavation can be let. These other surveys will deal with the location and size and character of the locks, reservoirs and other matter, and furnish the basis for the specifications for the contractors.

"It is the expectation of the management that the surveys will be completed and the financial arrangements made so that the contracts for the excavating of the canal can be let and the work of digging be begun early next year or as soon as the frost of the coming winter is out of the ground. Long before that time, however, the company will issue a definite and complete prospectus to the public."

It is pointed out by some of the Ohio river men that the cost of maintaining a 12-ft. channel in the Ohio river between Beaver Falls and Pittsburg will be exceedingly costly on account of the large amount of dredging that will have to be done after every freshet. Not only will the Ohio have to be dredged to this depth but the locks and dams on the lower Monongahela will have to be changed to afford this depth and the same amount of work to maintain a channel will have to be done on this section of the river in the Pittsburg district.

PERSONAL

George W. Pardee has been appointed local inspector of hulls at the port of Grand Rapids.

Capt. Wm. McAlpine of Detroit has been appointed master of the steel steamer Wm. H. Gratwick of the United States Transportation Co.'s fleet.

Mr. Charles O. Jenkins, Mr. Joseph G. Russell and Mr. George H. Eichelberger will hereafter associate for the general practice of law under the firm name of Jenkins, Russell & Eichelberger, with offices at 1514-1524 Rockefeller building, Cleveland. They are all very well known in the lake trade, Mr. Jenkins especially having been instrumental in building some modern steamers during the past two or three years. The firm will pay especial attention to admiralty law.

Mr. Charles J. Bonaparte of Baltimore has been appointed by President Roosevelt as secretary of the navy to succeed Paul Morton resigned. Mr. Bonaparte is the grandson of Jerome Bonaparte, once king of Westphalia, to which office he was elected by his extraordinary brother Napoleon. Elizabeth Patterson of Baltimore is Charles J. Bonaparte's grandmother. Jerome married her during his American visit to the great fury of his brother Napoleon who subsequently compelled him to dissolve the marriage.

A dispatch from Ashland stated that during the present season at least 100,000 tons of Brotherton-Yale and New Era ore will be shipped from Ashland to the Algoma Steel Co. at the Canadian Sault. Considerable ore will also go to the Canadian Furnace Co. at Midland, Ont. The Canadian ships Iroquois, Monkshaven, Leafield, Strathcona, Paliki and Barlum are now engaged in this trade.

MR. BURTON ON INTERNAL WATERWAYS.

Hon. T. E. Burton, chairman of the committee of rivers and harbors of the house of representatives spoke with intimate knowledge of internal waterways before the Ohio Valley Improvement Association at Pittsburg recently. This address which was through the pressure of space crowded out of the Marine Review at the time is herewith given as follows:

"I was asked to say something on the rivers of Europe and those of the United States. I will dwell on that just for a few minutes. Of the rivers of Europe the three greatest for navigation are the Seine, the Rhine and the Volga. You may classify each of them, for they are different. Next to these are the Elba, the Danube, the Weser and others of minor importance. There are some like the Rhine that are impassable, where the current is so swift that the total tonnage in a year is only about one-fiftieth part of that on the Ohio.

"Rivers like the Mersey, the Thames and the Clyde, which are used as harbors because they are estuaries from the sea, I eliminate. The Seine is improved with locks and dams like the Ohio, as it is now, and as you desire it still more to be improved. Then there is the Rhine, which has no locks and dams, but which has two railroads paralleling it, one on one side and one on the other, having the greatest tonnage of any river in Europe, illustrating the principle that rivers and railroads can co-operate in building up communities. The one by carrying the lighter class of freight and carrying it more rapidly and the other by carrying the coarser class. Then there is the Volga, which, instead of having a railroad on each bank, is like a great trunk line. Railroads cross it at right angles. Its principal item of traffic is naphtha residuum, or oil from which the refined material is taken; next to that comes grain, then comes fish. Like the Rhine, the most of its traffic is up stream.

"A little less than two years ago I had a talk with the Deputy Minister of Ways of Communication and he complained bitterly about the way the River Volga and other rivers of Russia were discriminated against, saying that Monsieur de Witte had made it a rule that the railroads must be a paying proposition, and he said that whenever at any point on the Volga or any other river a profitable traffic was developed the railways put down their rates, and when in the winter, the river was frozen, the railway rates were put up again, and this, notwithstanding the fact that the government owned the railroads and the government paid the expenses of improving the rivers. In France a very different condition prevails. There the government called upon the railways to build branches into certain localities not furnished with railways, and asking them also to allow them to control the hours of labor and the wages of locomotive firemen and engineers, asking the railways also to build lines for military purposes. The railways answered: 'We are not in this business for patriotism; we have considered those lines that you proposed in this territory and we cannot build them. We contend that it would be unprofitable.' The government then asked 'How much is the rate of interest you pay on your stock and bonds?' The answer was so and so, and the government said: 'If you will build these branches for military purposes and into this territory we will guarantee to you the same rate of interest as the increased cost.' The companies built them. The result to-day is that whenever anyone asks the railway companies to lower their rates they say: 'Very well, we will do it, but if we do it you must pay the interest. If we had a diminished income it falls on you, it is up to you.' And there is not that wholesome competition and that natural management which would belong to private ownership.

"In France there are different ideals in regard to water transportation. Canals and rivers have been improved for

centuries. Couples are married on the canal boat. Children are born on them. Warehouses are located next to the canal. It has become the method not only for decades but for centuries to deliver freight from the canal or from the river, and the result is an improvement of the rivers in accordance with the traditional ideal. Many are improved in a way that is not profitable according to any standard. So that of late the custom has been adopted of compelling the communities immediately interested to contribute part of the expense and to recoup by the charging of tolls and their collection. In Germany the custom is to go beyond the ordinary improvement by opening channels to charge tolls upon it so that there you cannot find the same standard. I believe that in the improvement of our rivers and in our harbors as well, and, throwing both of them open to the public, we have given a freedom to commerce with foreign countries from our harbors and between different States and communities on our rivers which has been a very great benefit in industrial and commercial upbuilding of the country. Up to date no tolls have been charged.

"I spoke here in this very place almost two years ago intimating that a certain degree of partnership was desirable. And I am inclined to think that in the future that participation will be adopted. To insure good faith on the part of the communities where the improvements are asked and to relieve the general government of the great burden which rests upon us, in the last bill that was passed we made several rules along that line, and the country will watch with interest their success. I would like to say something further in regard to the Ohio and the improvements of the river in this neighborhood, but I want to say to you this only: We are all friendly to the improvement of these rivers and harbors. We shall be glad to have all speedily pushed to completion, but what we need is someone to tell us how, with \$300,000,000 of projects staring us in the face, as it were, with \$30,000,000 or \$40,000,000 coming in every year under new surveys, we are able to take care of them all on between \$20,000,000 and \$30,000,000 a year. That being the case, it is necessary for us first to go slowly; second, to eliminate the greater share of the projects that are before us.

"We desire your co-operation, criticising us where criticism is due. We are willing to rest under a load of misunderstanding, even of obloquy, if only we can accomplish the end which is nearest to our hearts—the upbuilding of this common country of ours. I care not how much ignorance is manifested, how much accusation against the Chairman or anyone else, provided we can go forward with this great country of ours, improving its rivers and its harbors. That, for me, is reward enough, and it is reward enough for all my colleagues as well. I trust for your co-operation, citizens of Pittsburg, in judicious criticism, if required, but also in aid in upholding our hands and causing the country to believe that these appropriations are best.

"The people of this United States may be slow sometimes to learn, they may be tardy to grasp the truth, but I believe there is conscience behind all the great forces which give power and authority in this country. All the people need is to know the truth, to see the right and then they will follow it. Along this line better knowledge, more correct information, better education more than anything else I ask you citizens of Pittsburg who labor when you labor of improvements which you ask of us as a committee. The future that is before us you hardly understand yourselves, I believe. This country of ours is coming to be more of the purveyor of the world's wants. Here, between the lesser and the greater ocean, we have a variety of resources known nowhere else in the world. We have our splendid rivers, we have our great railroad systems. More than that, we have free institutions and we have the energy, the alertness, the push of the American citizen, that king among business men the world over."

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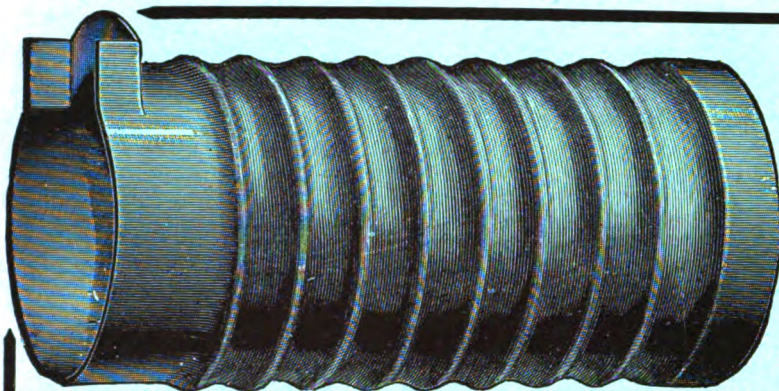
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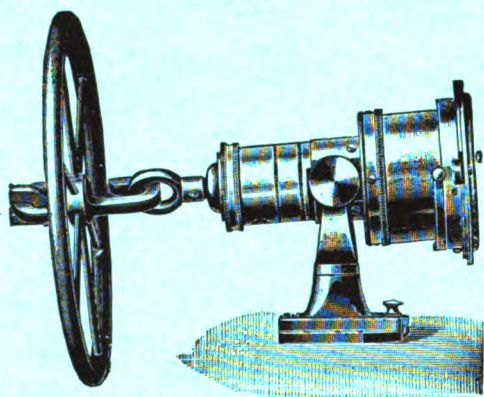
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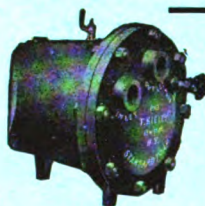
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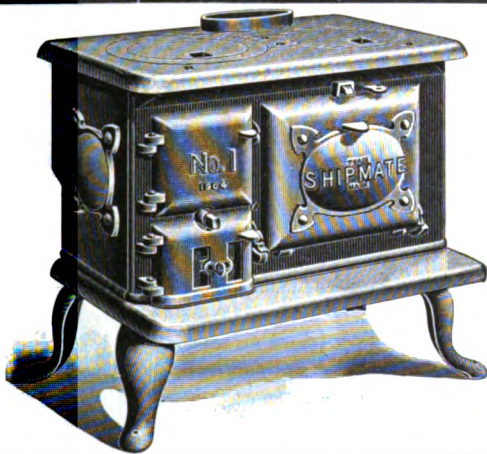
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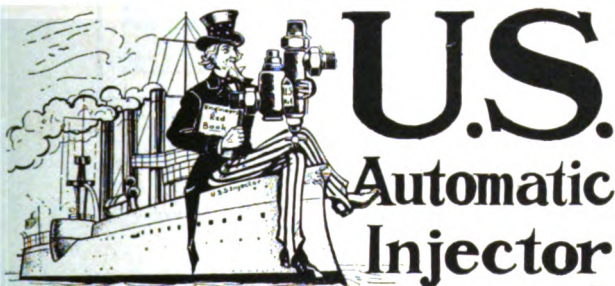
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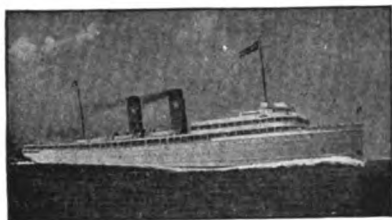
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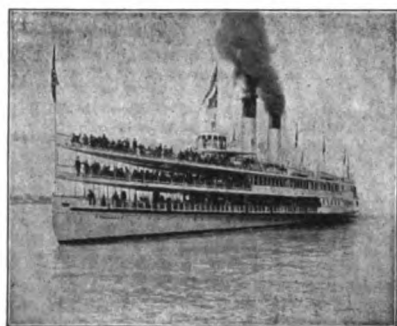
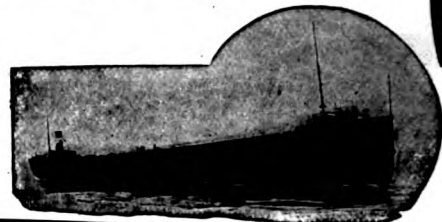
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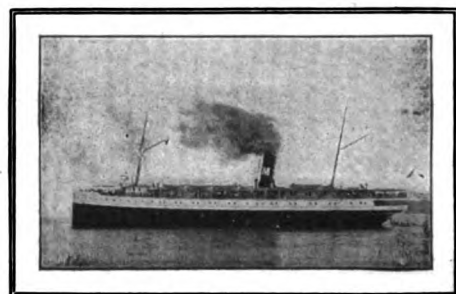
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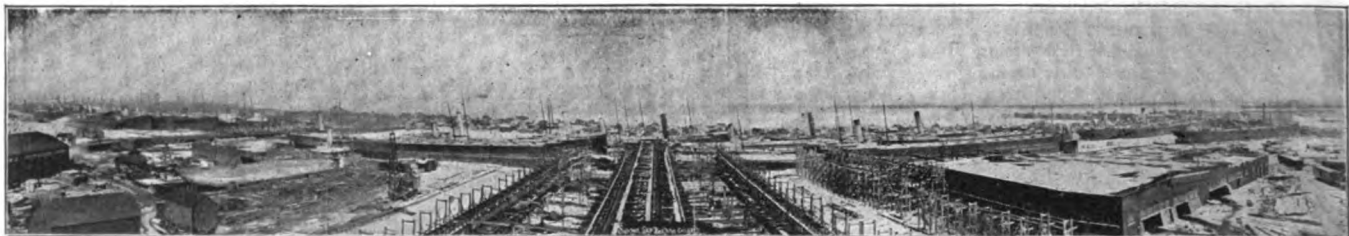


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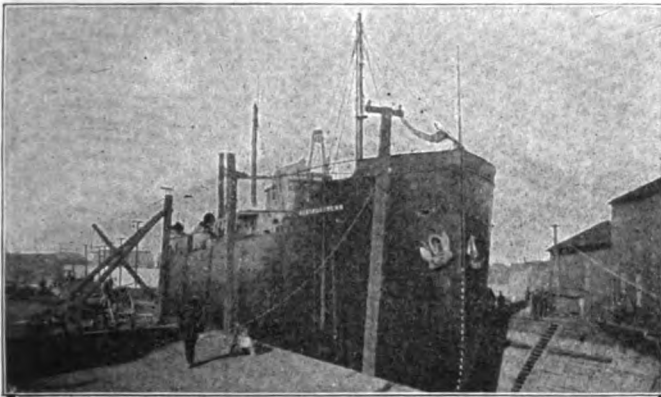
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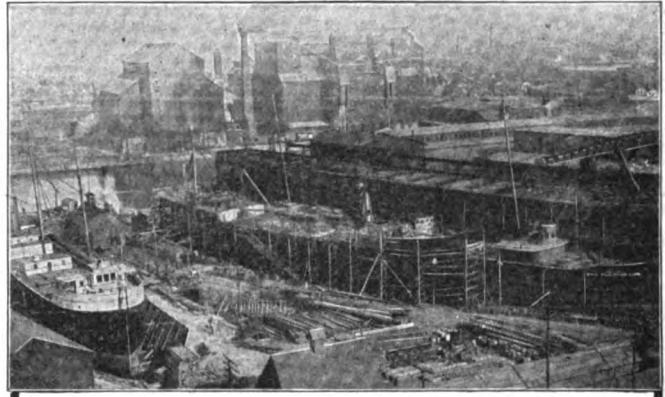
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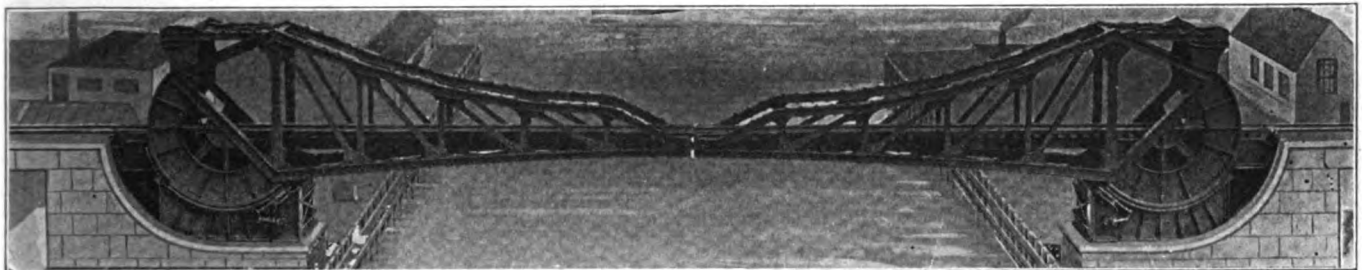
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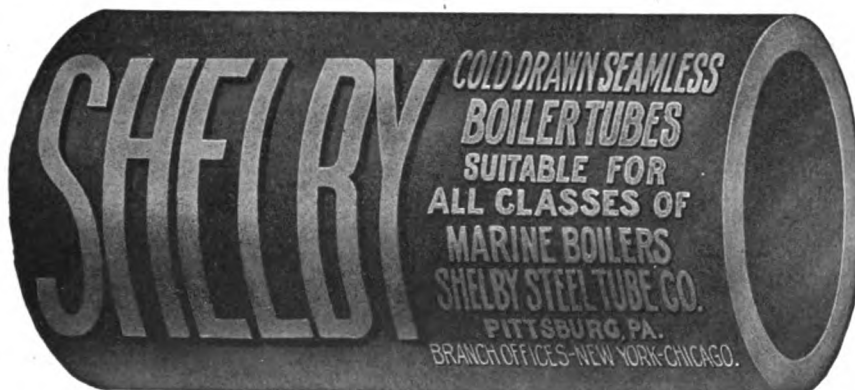
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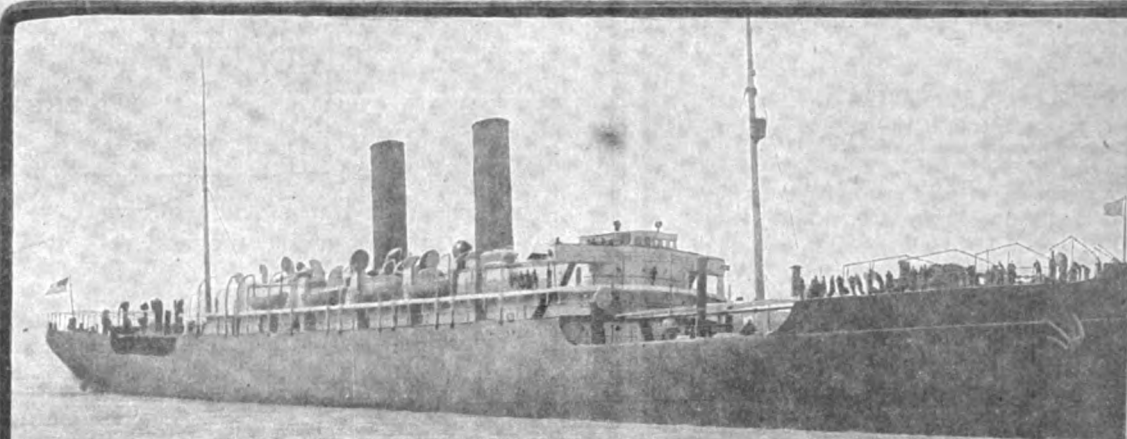
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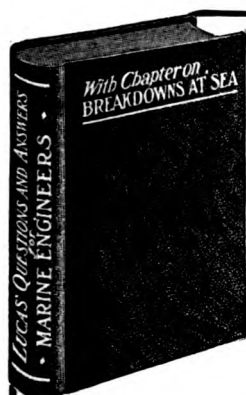
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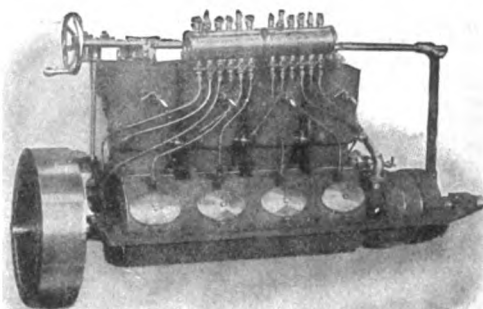
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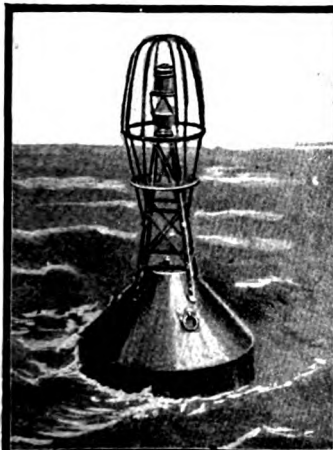
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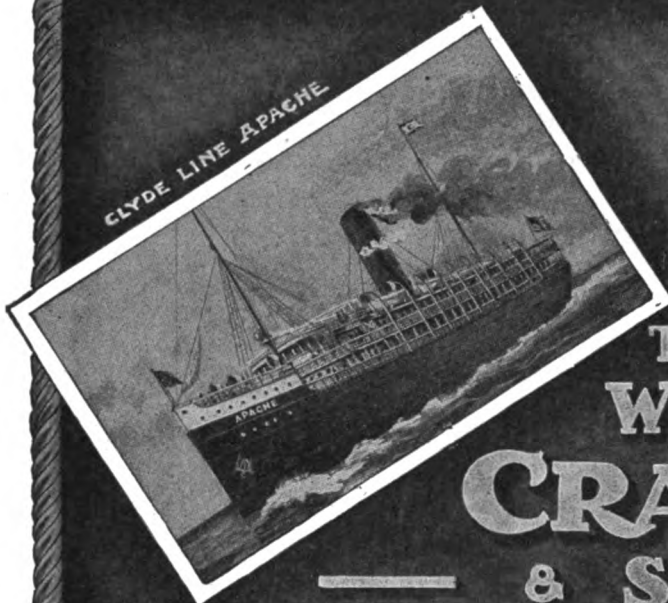
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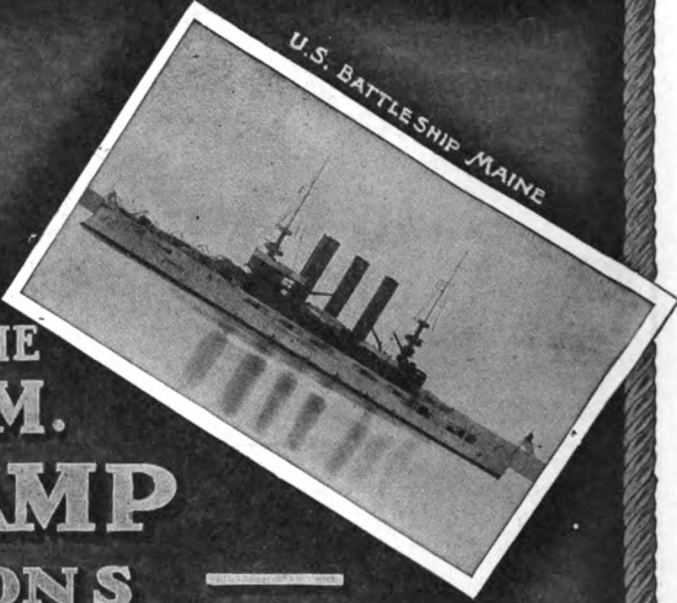
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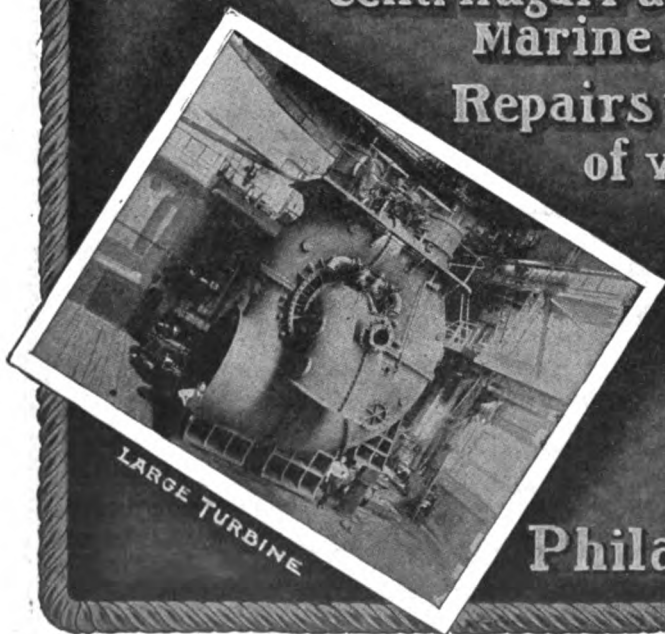
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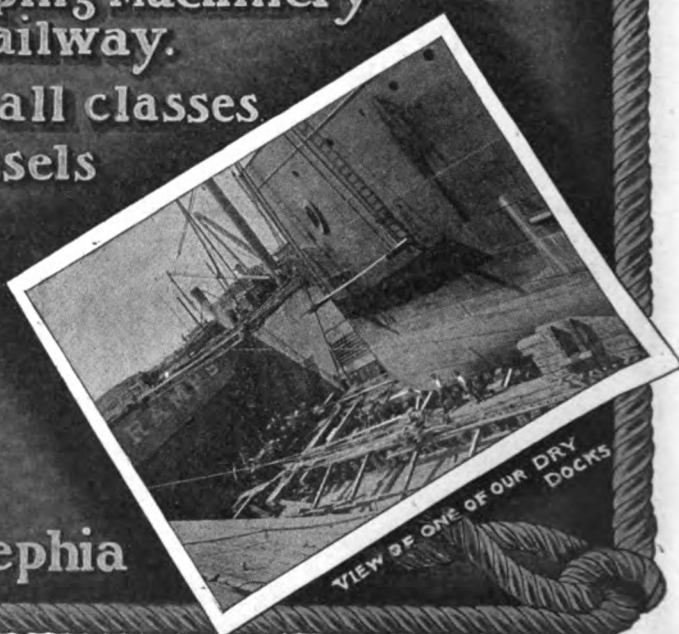
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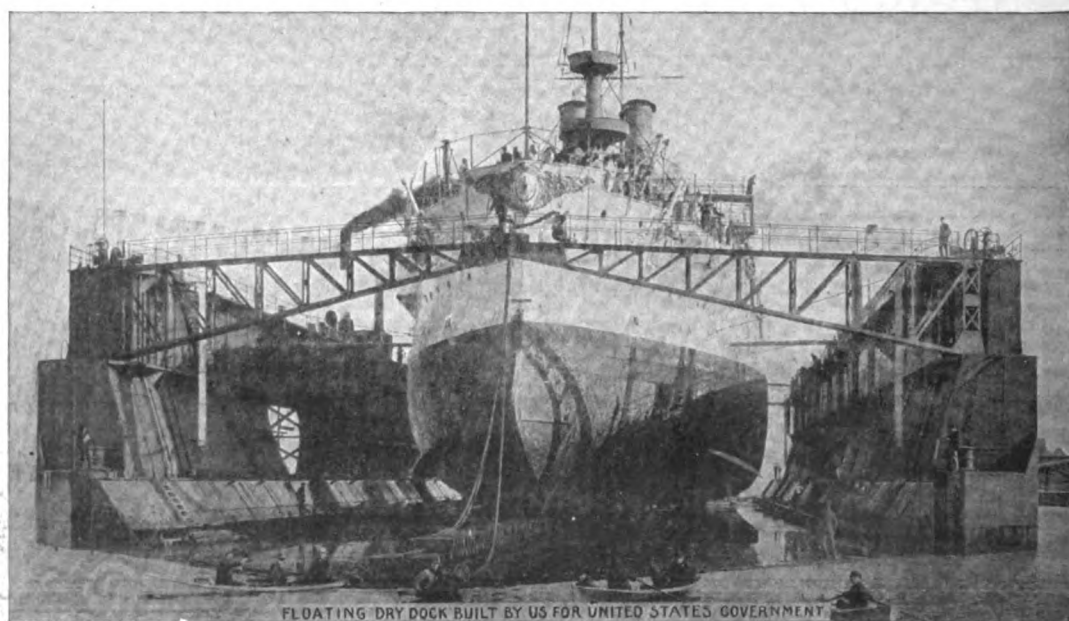
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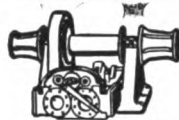
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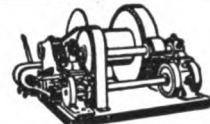
GASOLINE MARINE ENGINES

Suitable for all Boats from 3½ to 200 HP.
Over 100 in successful use.
Also the well known and always
reliable Woolters Gas or Gasoline
Stationary Engines.



HOISTING ENGINES

Of all kinds and sizes, and
for all purposes, especially
for ship use.
Docking and Hauling Engines
and Wire Rope Windlasses.



AUTOMATIC TOWING MACHINES

Somewhat the cheapest, and
altogether the best. Positively
guaranteed.

Automatic Fog Whistle Machines
Steam Steering Engines.

FOR THESE AND OTHER WELL KNOWN SPECIALTIES ADDRESS ALL INQUIRIES TO.
THE CHASE MACHINE CO. Engineers and Machinists, CLEVELAND, OHIO.

New York Shipbuilding Company

Main office and works, Camden, N. J., New York office No. 1 Broadway

Builders of
SHIPS — ENGINES — BOILERS
HEAVY MACHINERY



Launch of "Mongolia," Pacific Mail S. S. Co., July 25, 1903.
615 feet long, 65 feet beam, 51 feet deep.

Best Facilities for Repair Work

**Pneumatic and Electric Tools;
ample wharfage accomodation.**

100 ton crane.

Repairs done under shelter.

Commissioners' Sale

of the Shipbuilding Plant and other
property of the William R. Trigg Co.

By N. W. BOWE & SON, Real Estate Auctioneers, Richmond, Va.

By virtue of a decree of the Chancery Court of the City of Richmond, Virginia, entered on the 23rd day of May, 1905, in the suit of S. H. Hawes & Co. vs. William R. Trigg Company et als., the undersigned, who were appointed Special Commissioners for that purpose, will proceed to sell, by public auction, on the premises, Richmond, Virginia, to the highest bidder, on

Monday, the Tenth Day of July, 1905, at 10 o'clock, a. m.

free of all liens and encumbrances whatsoever, except the easements and burdens hereinafter mentioned, all and singular the following estates, lands, properties, rights, privileges, and franchises, to-wit:

All that certain lot or parcel of land, with the buildings and improvements thereon erected, comprising the ship yards, ship building plant, boundaries, shops, railways, manufactories, offices, piers, wharves and docks of the William R. Trigg Co., situate in the city of Richmond, Virginia, more particularly described in two certain deeds of trust made by the William R. Trigg Co. to the Commercial Trust Co., of Philadelphia, trustee, dated June 1, 1901, and to the Richmond Trust & Safe Deposit Co., trustee, dated June 14, 1902, respectively.

The property will be first offered in parcels, as follows:

FIRST—The Richmond Dock, with all rights, easements, privileges and appurtenances thereto belonging, including the franchises of the Richmond Dock Co., together with so much real estate not covered by water as is necessary and appurtenant to its use, as set out and defined in deed dated the first day of June, 1901, from the Chesapeake & Ohio Railway Co. to the William R. Trigg Co., recorded in the clerk's office of the chancery court of the city of Richmond, deed book 171-A, page 245, and subject to the burdens and obligations fixed in said deed.

SECOND—Lot No. 1, with the two (2) office buildings thereon:

Lot No. 2, with the machine shop thereon, together with all the machinery, shafting, motors, cranes and hand and small tools now contained therein;

Lot No. 3, with the pattern shop thereon, together with all machinery, shafting, motors and hand and small tools now contained therein;

Lot No. 4, with the foundry building thereon, together with all machinery, shafting, motors, cranes, cupolas and hand and small tools now contained therein;

Lot No. 5, with the Smith shop thereon, together with all machinery, shafting, motors, cranes and hand and small tools now contained therein;

Lot No. 6, with the bending shed and anglesmith shop thereon, together with all machinery, shafting, motors and hand and small tools now contained therein;

Lot No. 7, with the mold loft thereon, together with all machinery, shafting, motors and hand and small tools now contained therein;

Lot No. 8, with the shipfitters' shed thereon, together with all machinery, shafting, motors and hand and small tools now contained therein;

Lot No. 9, with the carpenter and joiner shop thereon, together with all machinery, shafting, motors and hand and small tools now contained therein;

Lot No. 10, being a vacant piece or parcel of land containing three (3) acres, more or less, lying between the Smith shop and the bending shed;

Lot No. 11, being all of the unoccupied real estate lying east of lot No. 9, and containing fourteen (14) acres, more or less, on which said lot is located a launching basin and ship lock.

The exact location, together with their metes and bounds, of the aforesaid tracts of land will appear from the plats in the possession of the undersigned special commissioners and the auctioneer, access to which is open to the public, and blue prints of which will be furnished to any party applying for the same.

THIRD—The said special commissioners will then proceed to offer

separately each of the aforesaid lots of land, with the buildings thereon as above indicated, *without* the machinery, tools, etc., contained therein, but with the appliances for electric lighting, wiring for power, automatic sprinklers and heating appliances.

FOURTH—The machinery, shafting, motors, cranes and hand and small tools contained in each of the aforesaid buildings in separate parcels, and distinct from the buildings.

FIFTH—All cranes, cableways, shear legs, derricks and other machinery and yard equipment outside of the aforesaid buildings, including a floating machine shop and a floating derrick.

SIXTH—All of the real estate comprising the plant of the William R. Trigg Co., except the dock with its appurtenances as above described, containing about 30 acres, more or less, together with the buildings thereon.

All of the above real estate, including the aforesaid dock, is sold subject to certain easements, rights, licenses, and privileges reserved by the Chesapeake & Ohio Railway Co. in two certain deeds conveying portions of the aforesaid property to said William R. Trigg Co., dated the 1st of June, 1901, and recorded in the clerk's office of the chancery court of the city of Richmond, in deed book 171-A, pages 245 and 258, and subject to certain easements, rights, licenses and privileges set out in two certain deeds between said William R. Trigg Co. and the Southern Railway, each dated the 21st day of November, 1904, recorded in the aforesaid clerk's office in deed book 183-B, pages 315 and 320.

SEVENTH—The said special commissioners will then proceed to offer as a whole the aforesaid land, dock, buildings, machinery, fixtures, equipment and property of every sort, kind and description above referred to, reporting to the court for its acceptance or rejection, the bid or bids aggregating the largest amount of purchase money.

TERMS—The terms of said sale, in the event that the said property is sold as a whole, are as follows: \$50,000 in cash, of which \$10,000 shall be paid to the said special commissioners by the purchaser or purchasers on the date of said sale, and \$40,000 when said sale shall have been confirmed by the court; the balance of the purchase money on equal credits of one, two and three years, the purchaser to execute negotiable notes, bearing interest from the date of the confirmation of said sale, for the deferred payments; with the right in the purchaser to pay the whole amount of purchase money in cash, and to anticipate the due date of any or all of said notes. The title to the property to be retained by the court until the whole of the purchase price is paid, and a deed directed to be executed to the purchaser.

If sold in parcels, then the following are the terms: As to all articles of personal property, or property removable under said decree, all cash; as to the real estate, or any parts thereof, one-fourth of the purchase price in cash, and the balance on equal credits of one, two and three years, the deferred payments being evidenced by purchaser's notes, bearing interest from date of confirmation of sale, with the right in the purchaser to anticipate the due date of any or all of said notes, and title to be retained until the entire purchase money is paid and conveyance ordered by the court.

For further information apply to either of the undersigned Special Commissioners or to the Auctioneer.

BEVERLEY B. MUNFORD
LILBURN T. MYERS } Special Commissioners.

The bond required of the Special Commissioners by the above named decree has been duly executed.

CHARLES O. SAVILLE,
Clerk of the Chancery Court of the City of
Richmond.

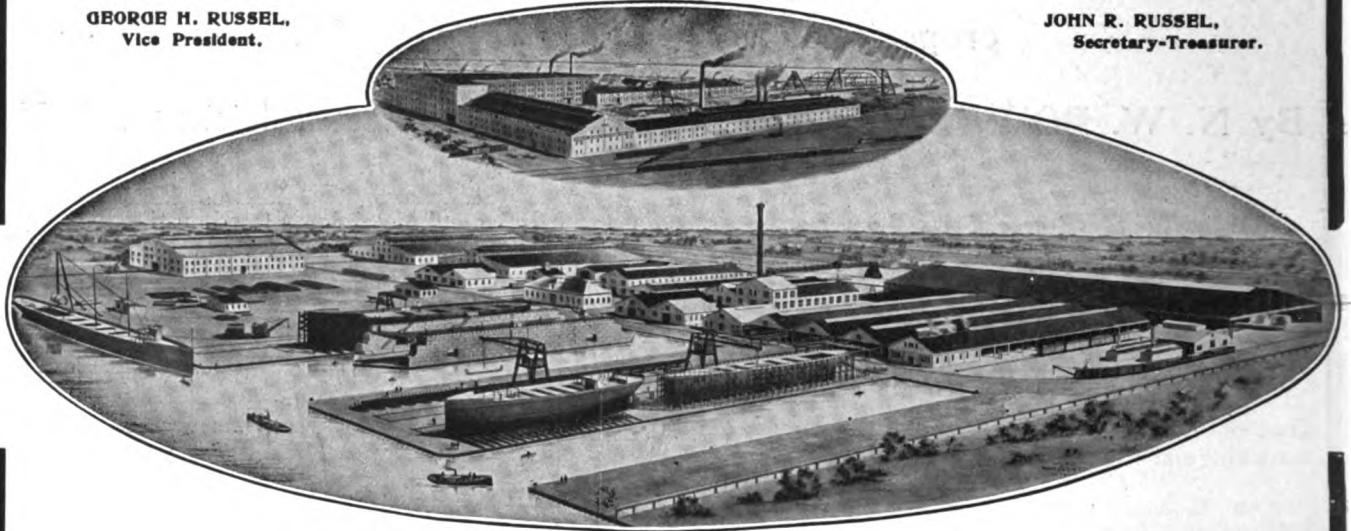
GREAT LAKES ENGINEERING WORKS

DETROIT, MICH.

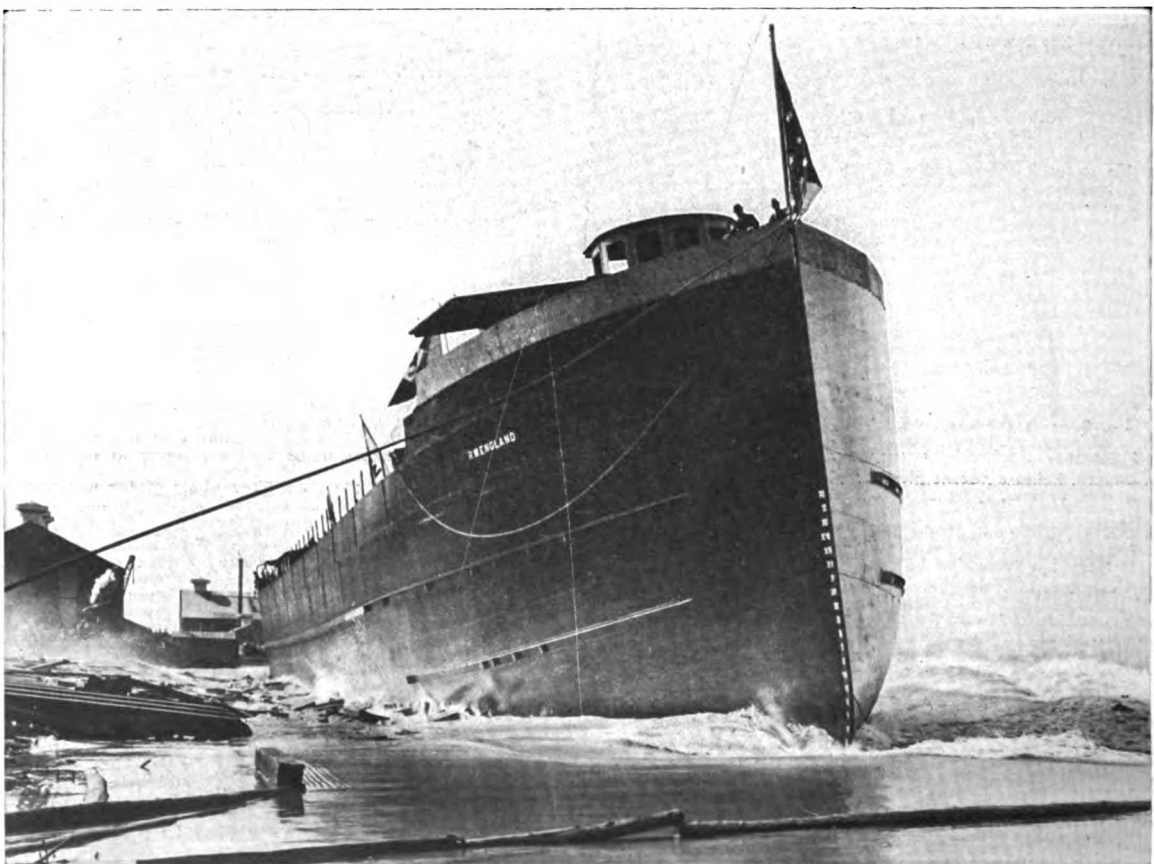
ANTONIO C. PESSANO, President and Gen. Mgr.

GEORGE H. RUSSEL,
Vice President.

JOHN R. RUSSEL,
Secretary-Treasurer.



**Designers and Builders of
Steel Freight and Passenger Ships.
Marine Engines. = Hydraulic Dredges.**



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BELLEVILLE WATER-TUBE BOILERS

NOW IN USE (MARCH, 1905)

On Board Sea-going Vessels, NOT INCLUDING New Installations Building or Erecting.

French Navy	-	-	-	-	-	-	-	-	360,560	H. P.
English Royal Navy	-	-	-	-	-	-	-	-	966,300	"
Russian Imperial Navy	-	-	-	-	-	-	-	-	253,800	"
Japanese Imperial Navy	-	-	-	-	-	-	-	-	122,700	"
Austrian Imperial Navy	-	-	-	-	-	-	-	-	56,700	"
Italian Royal Navy	-	-	-	-	-	-	-	-	32,500	"
Chilian Navy	-	-	-	-	-	-	-	-	26,500	"
Argentine Navy	-	-	-	-	-	-	-	-	13,000	"
The "Messageries Maritimes" Company	-	-	-	-	-	-	-	-	87,600	"
Chemins de fer de l'Ouest: (The French Western Railway Co.)	-	-	-	-	-	-	-	-	18,500	"
plying between Dieppe and Newhaven	-	-	-	-	-	-	-	-	1,500	"
Compagnie Generale Transatlantique	-	-	-	-	-	-	-	-	1,500	"
Total Horse Power of Boilers <u>in Use</u>									1,939,660	

Société Anonyme des Etablissements Delaunay Belleville

CAPITAL: 8,000,000 FRANCS

Works and Dock Yards of the Ermitage at Saint-Denis (Seine), France.

Telegraphic Address: Belleville, Saint-Denis-Sur-Seine

Geo. L. McCurdy

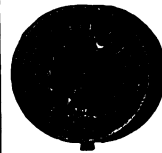
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INSURANCE

HULLS and CARGOES

DIRECT REPRESENTATIVE OF LEADING
AMERICAN AND FOREIGN UNDERWRITERS



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Cam Lever Pop Safety Valves
and Non-Corrosive
Steam Gauges.

give highest efficiency and durability.
Specify them and get the best.

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Boston New York Chicago

U. S. A.

STRUCTURAL STEEL:

All sizes of Angles, Beams, Channels,
Plates, etc., in stock at Cleveland for im-
mediate shipment—cut to length if desired.

SEE OUR STOCK LIST.

THE
BOURNE-FULLER CO.

IRON, STEEL
PIG IRON
COKE

Cleveland, Ohio

Buyers' Directory of the Marine Trade

For a more complete classification than that represented by advertisers in the Marine Review, see the BLUE BOOK OF AMERICAN SHIPPING, marine and naval directory of the United States, published by The Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Great Lakes Engineering Works.....Detroit.
Mietz, Aug.New York.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co., Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.
Seaboard Steel Casting Co.....Chester, Pa.

ANTI-FOULING AND ANTI-CORRO-SIVE COMPOSITION FOR STEEL VESSELS.
Holzapfel's American Composition Co.....New York.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F., Co.....Hyde Park, Mass.

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.

Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Jenkins, Russell & Eichelberger.....Cleveland.
Kremer, C. E.....Chicago.
Macdonald, Ray G.....Chicago.
Potter & Potter.....Buffalo.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland

BAROMETERS, MARINE GLASSES, ETC.

Ritchie, E. S. & Sons.....Brookline, Mass.

BEDS

Owens Co., D. T.....Cleveland.

BELT CONVEYORS.

Link Belt Machinery Co.....Chicago.

BLOCKS, SHEAVES, ETC.

Boston & Lockport Block Co.....Boston, Mass.

Cleveland Block Co.....Cleveland.

BLOWERS.

Power Specialty Co.....Detroit.

Sturtevant, B. F. Co.....Hyde Park, Mass.

BOAT BUILDERS.

Drein, Thos. & Son.....Wilmington, Del.

Kahnweiler's Sons, David.....New York.

Lane & DeGroot.....Long Island City, N. Y.

Marine Construction & D. D. Co.....

Mariner's Harbor, S. I., N. Y.

Truscott Boat Mfg. Co.....St. Joseph, Mich.

Willard, Chas. P. & Co. Winthrop Harbor, Ill.

BOILER CLEANING DEVICE.

Power Specialty Co.....Detroit.

BOILER COMPOUNDS.

Dearborn Drug & Chemical Works.....Chicago.

BOILER MANUFACTURERS.

Almy Water Tube Boiler Co.....Providence, R. I.

American Ship Building Co.....Cleveland.

Atlantic Works.....East Boston, Mass.

Babcock & Wilcox Co.....New York.

Bertram Engine Works Co., Ltd.....Toronto, Can.

Chicago Ship Building Co.....Chicago.

Cramp, Wm. & Sons.....Philadelphia.

DeLauray, Belleville & Co., St. Denis, France.

Detroit Ship Building Co.....Detroit.

East End Boiler Works.....Detroit.

Fletcher, W. A. & Co.....Hoboken, N. J.

Fore River Shipbuilding Co.....Quincy, Mass.

Georgian Bay Engineering Works.....Midland, Ont.

Great Lakes Engineering Works.....Detroit.

Kingsford Foundry & Machine Works.....

Oswego, N. Y.

Marine Iron Works.....Chicago.

BOILER MANUFACTURERS—Continued.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher Water Tube Boiler Co.....New York.
Newport News Ship Building Co.....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co.....Duluth, Minn.
Roberts Safety Water Tube Boiler Co.....New York.
Stirling, The Co.....New York.
Superior Ship Building Co.....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.
Willard, Chas. P. & Co. Winthrop Harbor, Ill.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co., Cuyahoga Falls, O.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
Fore River Ship & Engine Co., Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co.....Cincinnati.
Macbeth Iron Co.....Cleveland.

BRIDGES, BUILDERS OF.
Cowing, John P.....Cleveland.
Scherzer Rolling Lift Bridge Co.....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.....Cleveland.
McMyler Mfg. Co.....Cleveland.
Mayo & Bailey.....Chicago.

BULKHEAD DOORS, WATERTIGHT.
"Long Arm" System Co.....Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A.....New York.
Upson-Walton Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co.....Providence, R. I.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

CARPETS, RUGS AND FURNITURE.
Williams & Rodgers Co.....Cleveland.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co.....Jersey City, N. J.

CHAINS.
Woodhouse Chain Works.....Trenton, N. J.

CHAIN CONVEYORS, HOISTS.
Brown Hoisting Machinery Co. (Inc.).....Cleveland.
General Electric Co.....Schenectady, N. Y.

CHAIN HOISTS.
Boston & Lockport Block Co.....Boston, Mass.

CHARTS.
Penton Publishing Co.....Cleveland.
Potter, J. D.....London.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Ashton Valve Co.....Boston.
Ritchie, E. S. & Sons.....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown Hoisting Machinery Co. (Inc.).....Cleveland.
Link Belt Machinery Co.....Chicago.
McMyler Mfg. Co.....Cleveland.

COMPASSES.
Ritchie, E. S. & Sons.....Brookline, Mass.

CONDENSERS.
Great Lakes Engineering Works.....Detroit.
Thropp & Sons Co., John E.....Trenton, N. J.

CONTRACTORS FOR PUBLIC WORKS.
Breyman & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.....Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H. Milwaukee.
Sullivan, M.....Detroit.

CORDAGE.
Baker & Co., H. H.....Buffalo.
Upson-Walton Co.....Cleveland.

CORK JACKETS AND RINGS.
Armstrong Cork Co.....Pittsburg, Pa.
Kahnweiler's Sons, D.....New York.

CRANES, TRAVELING.
Brown Hoisting Machinery Co.....Cleveland.
McMyler Mfg. Co.....Cleveland.

DIVING APPARATUS.
Morse, A. J. & Son.....Boston.
Schrader's Son, Inc., A.....New York.

DREDGING CONTRACTORS.
Breyman & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Lake Superior Contracting & Dredging Co.....Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H. Milwaukee.
Sullivan, M.....Detroit.

DRYING APPARATUS.
Sturtevant, B. F. Co.....Hyde Park, Mass.

DRY DOCKS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Chicago Ship Building Co.....Chicago.
Craig Ship Building Co.....Toledo, O.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co.....Superior, Wis.

ELECTRIC HOISTS AND CRANES.
General Electric Co.....Schenectady, N. Y.

ELECTRIC LIGHT AND POWER PLANTS.
General Electric Co.....Schenectady, N. Y.
Mietz, Aug.....New York.
Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

WANTED and FOR SALE Department.**PROPOSALS.**

U. S. Engineer Office, Detroit, Mich., May 11, 1905. Sealed proposals for building concrete superstructure on main pier at Harbor Beach harbor of refuge, Mich., will be received here until 12:00 M., June 10, 1905, and then publicly opened. Information furnished on application. Lansing H. Beach, Major, Engrs. June 8

U. S. Engineer Office, Jones Building, Detroit, Mich., May 22, 1905. Sealed proposals for hire of one dredging plant and one steam derrick boat for use in St. Mary's River, Michigan, will be received here until 2 P. M. June 22, 1905, and then publicly opened. Information furnished on application. CHAS. E. L. B. DAVIS, Lieut.-Col., Engineers. June 15

PROPOSALS FOR CONSTRUCTING BREAKWATER.—U. S. Engineer Office, 262 Huron Street, Cleveland, Ohio, May 20, 1905. Sealed proposals for constructing the Shoreward End of the West Breakwater at Ashtabula Harbor, Ohio, will be received at this office until 2 P. M., June 19, 1905, and then publicly opened. Specifications, blank forms and all available information will be furnished on application to this office. DAN C. KINGMAN, Lieut.-Col. Corps of Engineers, U. S. A. June 15.

U. S. Engineer Office, Jones Building, Detroit, Mich., May 20, 1905. Sealed proposals for dredging in St. Mary's River, at Bayfield Shoal and Entrance Angle to Middle Neebish, will be received here until 2 P. M., June 20, 1905, and then publicly opened. Information furnished on application. CHAS. E. L. B. DAVIS, Lieut.-Col. Engineers. June 15

U. S. Engineer Office, Duluth, Minn., May 27, 1905.—Sealed proposals for pile dike and riprap at Grand Marais, Mich., will be received here until noon, June 26, 1905, and then publicly opened. Information on application. CHAS. L. POTTER, Major, Engrs. June 22

U. S. Engineer Office, Duluth, Minn., May 27, 1905.—Sealed proposals for dredging about 117,000 yards in Portage Lake Ship Canals, Keweenaw Point, Michigan, will be received here until noon, June 27, 1905, and then publicly opened. Information on application. CHAS. L. POTTER, Major, Engrs. June 22

U. S. ENGINEER OFFICE, Montgomery, Ala., May 31, 1905. Sealed proposals for dredging "Link Channel," Apalachicola Bay, Fla., and Carrabelle Bar, Fla., will be received here until noon July 1, 1905, and then publicly opened. Information furnished on application. J. B. CAVANAUGH, Capt. Engrs. June 20

PROPOSALS FOR CONSTRUCTING BREAKWATER.—U. S. Engineer Office, 262 Huron Street, Cleveland, Ohio, May 31, 1905. Sealed proposals for reconstructing and repairing parts of the west pier at Lorain harbor, Ohio, will be received at this office until 2 p. m., June 20, 1905, and then publicly opened. Specifications, blank forms and all available information will be furnished on application to this office. DAN C. KINGMAN, Lieut. Col., Corps of Engineers, U. S. A.

FOR SALE.**Patent on Valuable Nautical Invention.**

A device in the form of an air buoy for definitely locating sunken vessels. Should the vessel sink upon which this buoy is placed, the buoy floats, and a line, made fast in a separate compartment, unreels until the vessel strikes bottom, thereby locating the exact position of the sunken vessel. This buoy is also adapted for use as a mooring buoy for yachts of all sizes, and for all floating property. It can be manufactured and sold for much less than any other buoy in use. Will sell the patent for cash or exchange for vessel or other property. Address, Capt. J. Fred Tribble, 59 Broadway, Norwich, Conn. t.f.

For Sale.

FOR SALE.—Electric dynamos, direct connected to engines, also search-lights for marine work; good condition; cheap. JORDAN BROS., 74 Beekman St., New York. April 27

Dock Lease for Sale.

Long lease of valuable dock at Sault Ste. Marie, Mich. Will sell or rent for long or short term. F. R. Warner, Trustee, Sault Ste. Marie, Mich.

Scotch Marine Boilers.

Four new, Scotch Marine Boilers, 10 ft. diameter and 11 ft. long. Will pass inspection for 200 lbs. working pressure. Quick delivery. Low price. Address B. M., care Marine Review, Cleveland.

The Steamer Gordon Campbell.

Burned on spar-deck—easy to cut down to lumber barge, to carry million feet. Machinery and boilers untouched. Hull untouched and in good condition. Boat in dry dock and thoroughly overhauled last summer. Can be seen in Chicago. Want best offer. Address Room 613, 59 Dearborn St., Chicago. t f

FOR SALE.**Marine Boiler.**

For Sale.—One 50 H. P. Scotch Marine Boiler, 10 ft. long, 78 in. diameter, 160 lbs. steam pressure. Manufactured by Ritter & Co., Buffalo, N. Y. In first-class shape. For particulars, write The Detroit Stove Works, Detroit, Mich. t. f.

For Sale.

Tugs—One 18 x 18; one 14 x 16; one 10 x 12. Clam shell dredge with dipper arrangement. Machinery, iron work and equipment for 2½-yard dipper dredge. Machinery for clam shell dredge. Flat scow 112 x 32 x 9. Two 100-yard dump scows. Carlin, Stickney & Cram, Detroit, Mich.

Steel Tug for Sale.

70 ft. long; 15 ft. beam and 7 ft. deep. Marine fire box, boiler 150 lbs. steam; Sutton engine 12 x 14. Built in 1901. Address Wm. Tallman, 262 W. 3rd street, Erie, Pa.

TO CHARTER**To Charter.**

Auxiliary schooner Yacht, 100 ft., 100 h. p. motor, about 10 miles under power; five staterooms, bath and toilet rooms, large saloon; seats 14 at table; electric lights; very handsomely furnished; complete in every detail; large naptha launch, new sails; everything in fine order; photograph, cabinet plans, full particulars. CRUSADER, 223 Walnut street, Philadelphia, Pa.

WANTED.**Salesmen Wanted.**

Wanted.—Salesmen or agents to sell a patented specialty of great merit for boilers, which is already being used by the largest concerns. Address Power Specialty Co., 513 Washington Arcade, Detroit, Mich. t.f.

THE GREAT LAKES RED BOOK FOR 1905 IS OUT

It contains the names of captains and engineers on over a thousand boats on the Great Lakes, with the names of boats' owners and managers.

Get one. Costs a Dollar.

The Marine Review

Cleveland

Buyers' Directory of the Marine Trade.—Continued.

ENGINE BUILDERS, MARINE.

American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Bertram Engine Works Co., Ltd.....

.....Toronto, Can.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Dake Engine Co.....Grand Haven, Mich.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit, Mich.
Hall Bros.....Philadelphia.
Lockwood Mfg. Co.....East Boston, Mass.
Marine Iron Works.....Chicago.
Maryland Steel Co.....Sparrows Point, Md.
Mietz, Aug.....New York.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher, Chas. D.....New York.
Moulton Steering Engine Co.....New York.
Newport News Ship Building Co.....Newport News, Va.

.....New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co.....Duluth, Mich.
Roach's Ship Yard.....Chesters, Pa.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co.....Superior, Wis.
Thropp, J. E. & Sons Co.....Trenton, N. J.
Trout, H. G.....Buffalo.
Willard, Chas. P. & Co.....Winthrop Harbor, Ill.

ENGINE ROOM TELEGRAPH, CALL BELLS, ETC.

Cory, Chas. & Son.....New York.
Marine Mfg. Supply Co.....New York.

ENGINE TESTING.

Kreer & Parsons.....Chicago.

ENGINEERING SPECIALTIES AND SUPPLIES.

Crane Co.....Chicago.
Kieley & Mueller.....New York.
Lunkenheimer Co.....Cincinnati.
New York Belting & Packing Co.....New York.
Northwestern Steam Boiler & Mfg. Co.....Duluth, Minn.

ENGINEERS, MARINE, MECHANICAL, CONSULTING.

Hynd, Alexander.....Cleveland.
Hunt, Robt. W. & Co.....Chicago.
Kidd, Joseph.....Duluth, Minn.
Kreer & Parsons.....Chicago.
Lovejoy, H. O.....Buffalo.
Mosher, Chas. D.....New York.
Nacey, James.....Cleveland.
Rice, Henry.....Buffalo.
Roelker, H. B.....New York.
Wood, W. J.....Chicago.

FANS FOR VENTILATION, EXHAUST, ETC.

Sturtevant, B. F. Co.....Hyde Park, Mass.

FEED WATER PURIFIERS AND HEATERS.

Greacen-Derby Engineering Co.....Perth Amboy, N. J.
Ross Valve Co.....Troy, N. Y.

FIRE EXTINGUISHERS.

Safety Fire Extinguisher Co.....New York.

FIXTURES FOR LAMPS, OIL OR ELECTRIC.

General Electric Co.....Schenectady, N. Y.

FORGES.

Sturtevant, B. F. Co.....Boston.

FORGINGS FOR CRANK, PROPELLER OR THRUST SHAFTS, ETC.

Cleveland City Forge & Iron Co.....Cleveland.
Fore River Shipbuilding Co.....Quincy, Mass.
Macbeth Iron Co.....Cleveland.

FLUE WELDING.

Fix's, S. Sons.....Cleveland.

FUEL ECONOMIZERS.

Sturtevant Co., B. F.....Hyde Park, Mass.

FUELING COMPANIES AND COAL DEALERS.

Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Parker Bros. Co., Ltd.....Detroit.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.
Smith, Stanley B., & Co.....Detroit.
Smith Coal & Dock Co., Stanley B. Toledo, O.

FUELING PLANTS, BUILDERS OF

Link Belt Machinery Co.....Chicago.

FURNACES FOR BOILERS.

Continental Iron Works.....New York.

GAS BUOYS.

Safety Car Heating & Lighting Co.....New York.

GAS AND GASOLINE ENGINES.

Chase Machine Co.....Cleveland.
Georgian Bay Engineering Works.....Midland, Ont.

GAUGES, STEAM AND VACUUM.

Ashton Valve Co.....Boston.
Lunkenheimer Co.....Cincinnati.

GAUGES, WATER.

Bonner & Co., Wm. T.....Boston.
Lunkenheimer Co.....Cincinnati, O.

GRAPHITE.

Dixon Crucible Co., Joseph.....Jersey City, N. J.

GREASE EXTRACTORS.

Greacen-Derby Engineering Co.....Perth Amboy, N. J.

HAMMERS, STEAM.

Chase Machine Co.....Cleveland.

HEATING APPARATUS.

Sturtevant, B. F. Co.....Hyde Park, Mass.

HOISTS FOR CARGO, ETC.

American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.).....Cleveland.
Chase Machine Co.....Cleveland.
General Electric Co.....New York.
Georgian Bay Engineering Works.....Midland, Ont.
Hyde Windlass Co.....Bath, Me.
McMyler Mfg. Co.....Cleveland.
Marine Iron Co.....Bay City.
Mietz, Aug.....New York.

HOLLOW SHAFTINGS, IRON OR STEEL.

Falls Hollow Staybolt Co.....Cuyahoga Falls, O.

HOLLOW STAYBOLT IRON.

Falls Hollow Staybolt Co.....Cuyahoga Falls, O.

HOSE, RUBBER.

New York Belting & Packing Co.....New York.

HYDRAULIC DREDGES.

Great Lakes Engineering Works.....Detroit.

HYDRAULIC TOOLS.

Watson-Stillman Co., The.....New York.

ICE MACHINERY.

Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INDICATORS FOR STEAM ENGINES.

Ashton Valve Co.....Boston.

INJECTORS.

American Injector Co.....Detroit.
Crane Co.....Chicago.
Jenkins Bros.....New York.
Lunkenheimer Co.....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.

Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F.....New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

IRON ORE AND PIG IRON.

Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.

Georgian Bay Engineering Works.....Midland, Ont.
Marine Iron Works.....Chicago.
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P.....Winthrop Harbor, Ill.

LIFE PRESERVERS, LIFE BOATS, BUOYS.

Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Gaynor, T. F.....New York.
Kahnweiler's Sons, D.....New York.
National Cork Co.....Brooklyn.

LIGHTS, SIDE AND SIGNAL.

Russell & Watson.....Buffalo.

LOGS.

Nicholson Ship Log Co.....Cleveland.
Walker & Sons, Thomas.....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.

Dixon Crucible Co., Joseph.....Jersey City, N. J.

LUBRICATORS.

Crane Co.....Chicago.
Lunkenheimer Co.....Cincinnati.

LUMBER.

Martin-Barriss Co.....Cleveland.

MACHINISTS.

Chase Machine Co.....Cleveland.
Hickler Bros.....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.

MACHINE TOOLS (WOOD WORKING).

Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.

Hickler Bros.....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.

Crandall & Son, H. L.....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.

Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.

American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Sturtevant, B. F. Co.....Hyde Park, Mass.

METALLIC PACKING.

Katzenstein, L. & Co.....New York.

METAL POLISH.

Bertram's Oil Polish Co.....Boston.

MOTORS, GENERATORS—ELECTRIC.

Fisher Electrical Works.....Detroit.
General Electric Co.....Schenectady, N. Y.
Sturtevant, B. F. Co.....Hyde Park, Mass.

NAUTICAL INSTRUMENTS.

Ritchie, E. S., & Sons.....Brookline, Mass.

NAVAL ARCHITECTS.

Hynd, Alexander.....Cleveland.
Kidd, Joseph.....Duluth, Minn.
Kreer & Parsons.....Chicago.
Lovejoy, H. O.....Buffalo.
Matteson & Drake.....Philadelphia.
Mosher, Chas. D.....New York.
Nacey, James.....Cleveland.
Rice, Henry.....Buffalo.
Wood, W. J.....Chicago.

OAKUM.

Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.

Mietz, Aug.....New York.

OILS AND LUBRICANTS.

Dixon Crucible Co., Joseph.....Jersey City, N. J.
Standard Oil Co.....Cleveland.

PACKING.

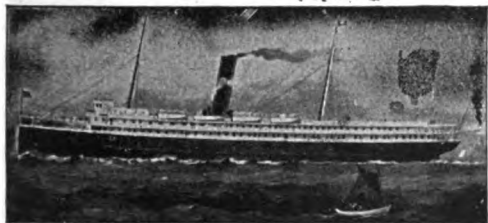
Crane Co.....Chicago.
Jenkins Bros.....New York.
Katzenstein, L. & Co.....New York.
New York Belting & Packing Co.....New York.

PAINTS.

Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co.....Cleveland.

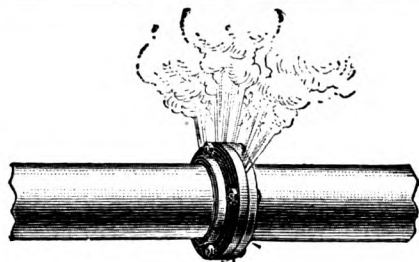
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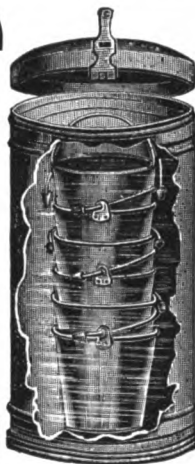
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PILE DRIVING AND SUBMARINE WORK.

Buffalo Dredging Co.....Buffalo.
 Dunbar & Sullivan Dredging Co.....Buffalo.
 Fitz-Simons & Connell Co.....Chicago.
 Great Lakes Dredge & Dock Co.....Chicago.
 Hickler Bros.....Sault Ste. Marie, Mich.
 Lake Superior Contracting & Dredging Co.
Duluth, Minn.
 Parker Bros. Co., Ltd.....Detroit.
 Smith Co., L. P. & J. A.....Cleveland.
 Starke Dredge & Dock Co., C. H.....Milwaukee.
 Sullivan, M.....Detroit

PIPE, WROUGHT IRON.

Bourne-Fuller Co.....Cleveland, O.
 Crane Co.....Chicago.
 Macbeth Iron Co.....Cleveland.
 Reading Iron Co.....Reading, Pa.

PLANING MILL MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Bourne-Fuller Co.....Cleveland, O.
 Otis Steel Co.....Cleveland.
 Reading Iron Co.....Reading, Pa.

PRESSURE REGULATORS.

Kieley & Mueller.....New York.
 Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.

American Ship Building Co.....Cleveland.
 Atlantic Works.....East Boston, Mass.
 Cramp, Wm. & Sons.....Philadelphia.
 Detroit Ship Building Co.....Detroit.
 Fore River Shipbuilding Co.....Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Lockwood Mfg. Co.....East Boston, Mass.
 Marine Iron Works.....Chicago.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 Roelker, H. B.....New York.
 Sheriffs Mfg. Co.....Milwaukee.
 Superior Ship Building Co.....Superior, Wis.
 Thropp & Sons Co., J. E.....Trenton, N. J.
 Trout, H. G.....Buffalo.

PROJECTORS, ELECTRIC.

General Electric Co.....Schenectady, N. Y.

PUMPS FOR VARIOUS PURPOSES.

Blake, Geo. F., Mfg. Co.....New York.
 Great Lakes Engineering Works.....Detroit.
 Marine Iron Works.....Chicago.
 Kingsford Foundry & Machine Works.....Oswego, N. Y.

RANGES.

Stamford Foundry Co.....Stamford, Conn.

REFRIGERATING APPARATUS.

Great Lakes Engineering Works.....Detroit.
 Roelker, H. B.....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.

Great Lakes Register.....Cleveland.

REPAIRS—ENGINE AND BOILER.

(See also Boiler Manufacturers and Engine Builders.)
 Georgian Bay Engineering Works.....Midland, Ont.

RIVETS, STEEL FOR SHIPS AND BOILERS.

Bourne-Fuller Co.....Cleveland, O.

SAFETY VALVES.

Ashton Valve Co.....Boston.
 Crane Co.....Chicago.
 Lunkenheimer Co.....Cincinnati.

SAIL MAKERS.

Baker, Howard H. & Co.....Buffalo.
 Upson-Walton Co.....Cleveland.

SALVAGE COMPANIES.

See Wrecking Companies.

SEARCH LIGHTS.

General Electric Co.....Schenectady, N. Y.

SHEARS.

See Punches, Rivets, and Shears.

SHIP AND BOILER PLATES AND SHAPES.

Bourne-Fuller Co.....Cleveland, O.
 Otis Steel Co.....Cleveland.

SHIP BUILDERS.

American Ship Building Co.....Cleveland.
 Atlantic Works.....East Boston, Mass.
 Bertram Engine Works Co., Ltd.....Toronto, Can.
 Buffalo Dry Dock Co.....Buffalo.
 Cramp, Wm. & Sons.....Philadelphia.
 Craig Ship Building Co.....Toledo, O.
 Chicago Ship Building Co.....Chicago.
 Detroit Ship Building Co.....Detroit.
 Fore River Shipbuilding Co.....Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Lockwood Mfg. Co.....East Boston, Mass.
 Maryland Steel Co.....Sparrows Point, Md.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 New York Shipbuilding Co.....Camden, N. J.
 Roach's Ship Yard.....Chester, Pa.
 Shipowner's Dry Dock Co.....Chicago.
 Smith & Son, Abram.....Algonac, Mich.
 Willard, Chas. P. & Co. Winthrop Harbor, Ill.

SHIP CHANDLERS.

Baker, Howard H. & Co.....Buffalo.
 Marine Mfg. & Supply Co.....New York.
 Upson-Walton Co.....Cleveland.

SHIP DESIGNERS.

Kidd, Joseph.....Duluth.
 Kreer & Parsons.....Chicago.
 Matteson & Drake.....Buffalo.
 Rice & Lovejoy.....Buffalo.
 Steel, Nacey & Hynd.....Cleveland.
 Wood, W. J.....Chicago.

SHIP LANTERNS AND LAMPS.

Russell & Watson.....Buffalo.

SHIPMATE RANGES.

Stamford Foundry Co.....Stamford, Conn.

SHIP TIMBER.

Martin-Barriss Co.....Cleveland.

SMOOTH-ON COMPOUND, FOR REPAIRS.

Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLT IRON OR STEEL BARS, HOLLOW OR SOLID.

Falls Hollow Staybolt Co., Cuyahoga Falls, O.
 Reading Iron Co.....Reading, Pa.

STEAM VESSELS FOR SALE.

Gilchrist & Co., C. P.....Cleveland.
 Holmes, Samuel.....New York.
 Lester, S. S.....Quebec, Can.
 McCarthy, T. R.....Montreal, Can.

STEAMSHIP LINES, PASS. AND FREIGHT.

American Line.....New York.
 Anchor Line.....Buffalo.
 Boston Steamship Co.....Boston.
 Cleveland & Buffalo Transit Co.....Cleveland.
 International Mercantile Marine Co.....Philadelphia.
 Mallory Line.....New York.
 Merchants' Montreal Line.....Montreal.
 New York & Cuba Mail S. S. Co.....New York.
 Red Star Line.....New York.
 United Fruit Co.....Boston.

STEEL CASTINGS.

Otis Steel Co.....Cleveland.

STEERING APPARATUS.

American Ship Building Co.....Cleveland.
 Chase Machine Co.....Cleveland.
 Detroit Ship Building Co.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Marine Mfg. & Supply Co.....New York.
 Moulton Steering Engine Co.....New York.
 Sheriffs Mfg. Co.....Milwaukee.

SUBMARINE DIVING APPARATUS.

Morse & Son, A. J.....Boston.
 Schrader's Son, Inc., A.....New York.

SURVEYORS, MARINE.

Gaskin, Edward.....Buffalo.
 Hynd, Alexander.....Cleveland.
 Lovejoy, H. O.....Buffalo.
 Matteson & Drake.....Philadelphia.
 Parker Bros. Co., Ltd.....Detroit.
 Nacey, James.....Cleveland.
 Rice, Henry.....Buffalo.
 Steel, Adam.....Cleveland.
 Wood, W. J.....Chicago.

TESTS OF MATERIALS.

Hunt, Robert W. & Co.....Chicago.
 Lunkenheimer Co.....Cincinnati, O.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.

Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.

Atlantic Works, Inc.....Philadelphia.

TOWING MACHINES.

American Ship Windlass Co., Providence, R. I.
 Chase Machine Co.....Cleveland.

TOWING COMPANIES.

Donnelly Salvage & Wrecking Co.....Kingston, Ont.
 Great Lakes Towing Co.....Cleveland.

TRAPS, STEAM.

Kieley & Mueller.....New York.
 Sturtevant Co., B. F.....Hyde Park, Mass.

TRUCKS.

Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.

Shelby Steel Tube Co.....Pittsburg, Pa.

VALVES, STEAM SPECIALTIES, ETC.

Ashton Valve Co.....Boston.
 Crane Co.....Chicago.
 Jenkins Bros.....New York.
 Kieley & Mueller.....New York.
 Lunkenheimer Co.....Cincinnati.
 Ross Valve Co.....Troy, N. Y.

VALVES FOR WATER AND GAS.

Lunkenheimer Co.....Cincinnati.
 Ross Valve Co.....Troy, N. Y.

VARNISHES.

Detroit Varnish Co.....Detroit.
 Detroit White Lead Works.....Detroit.
 New Jersey Zinc Co.....New York.
 Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Sturtevant, B. F. Co.....Hyde Park, Mass.

VESSEL AND FREIGHT AGENTS.

Boland, John J.....Buffalo.
 Brown & Co.....Buffalo.
 Elphicke, C. W. & Co.....Chicago.
 Fleming & Co., E. J.....Chicago.
 Gilchrist & Co., C. P.....Cleveland.
 Hall, John B.....Buffalo.
 Helm & Co., D. T.....Duluth.
 Hawgood & Co., W. A.....Cleveland.
 Holmes, Samuel.....New York.
 Hutchinson & Co.....Cleveland.
 Lester, S. S.....Quebec, Can.
 McCarthy, T. R.....Montreal.
 Mitchell & Co.....Cleveland.
 Parker Bros. Co., Ltd.....Detroit.
 Prindiville & Co.....Chicago.
 Richardson, W. C.....Cleveland.
 Sullivan, D. & Co.....Chicago.

VESSEL FURNISHINGS.

Williams & Rodgers Co.....Cleveland.

WATER GAUGES.

Bonner & Co., Wm. T.....Boston.
 Lunkenheimer Co.....Cincinnati, O.

WATERTIGHT BULKHEAD DOORS.

"Long Arm" System Co.....Cleveland.

WHISTLES, STEAM.

Ashton Valve Co.....Boston.
 Lunkenheimer Co.....Cincinnati.

WILFORD'S WATERPROOF CLOTH.

Bunker, E. A.....New York.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co.....Buffalo.
 DeGrauw, Aymar & Co.....New York.
 Upson-Walton Co.....Cleveland.

WINDLASSES.

American Ship Windlass Co., Providence, R. I.
 American Ship Building Co.....Cleveland.
 Hyde Windlass Co.....Bath, Me.
 Marine Mfg. & Supply Co.....New York.

WINCHES.

American Ship Windlass Co., Providence, R. I.
 Georgian Bay Engineering Works.....Midland, Ont.
 Hyde Windlass Co.....Bath, Me.

WOOD PRESERVING PAINT.

Carbolineum Wood Preserving Co.....Milwaukee.

WOOD WORKING MACHINERY.

Atlantic Works, Inc.....Philadelphia.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co.....Kingston, Ont.
 Great Lakes Towing Co.....Cleveland.
 Parker Bros. Co., Ltd.....Detroit.

YACHT AND BOAT BUILDERS.

Bertram Engine Works Co., Ltd.....Toronto, Can.
 Drein, Thos. & Son.....Wilmington, Del.
 Georgian Bay Engineering Works.....Midland, Ont.
 Truscott Boat Mfg. Co.....St. Joseph, Mich.
 Willard, Chas. P. & Co.....Winthrop Harbor, Ill.

YACHT BROKERS.

Clapham & Clapham.....New York.

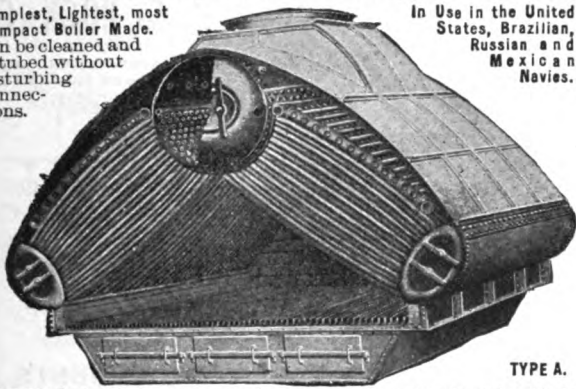
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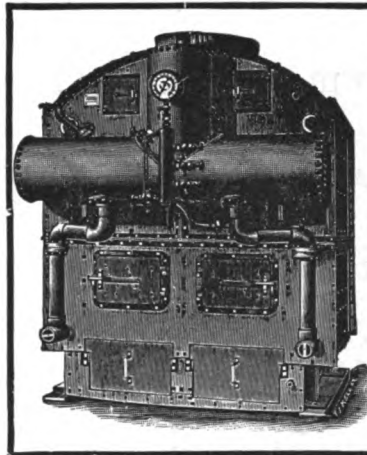
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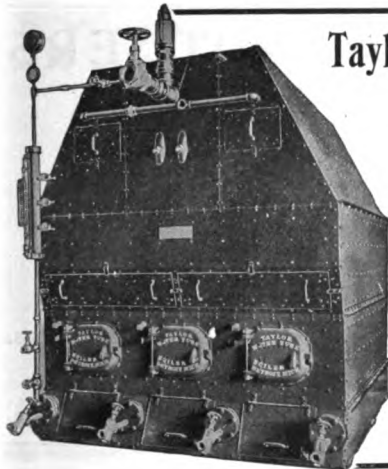
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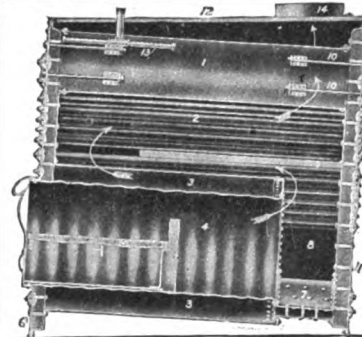


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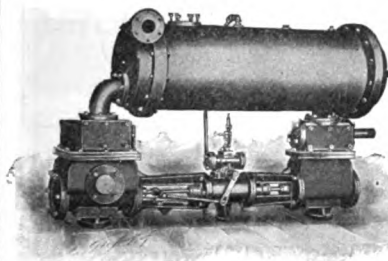
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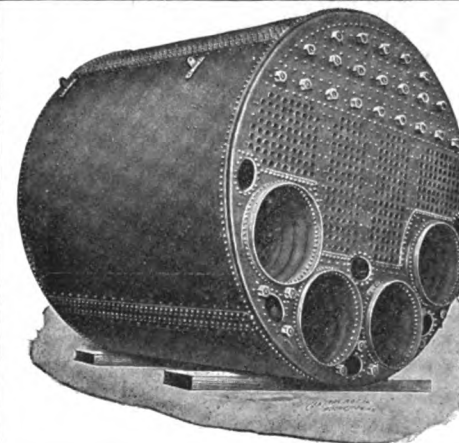
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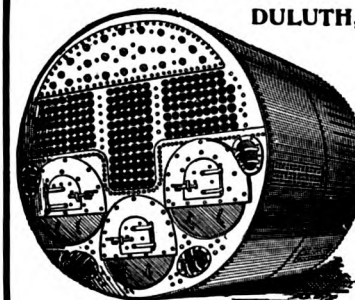
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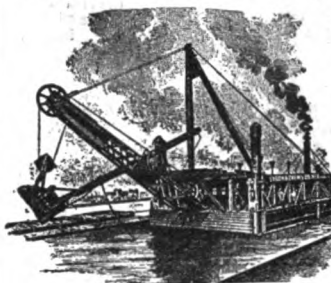
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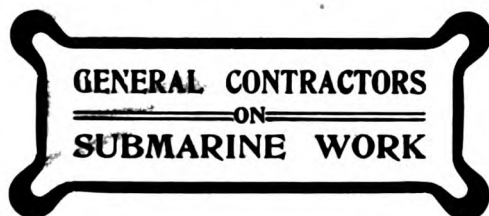
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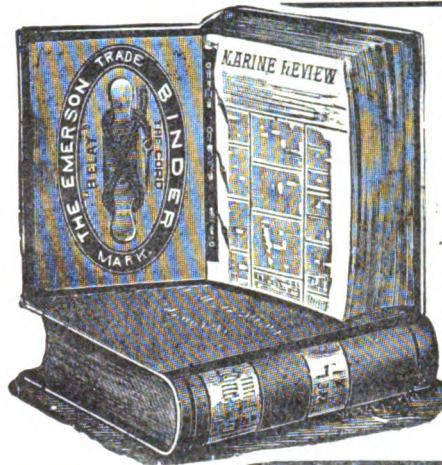
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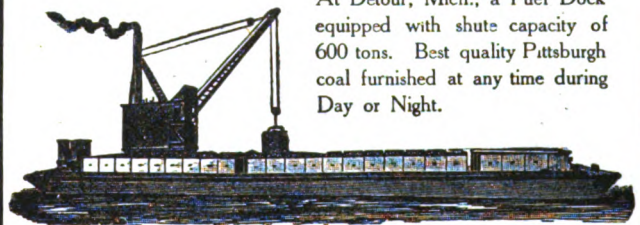
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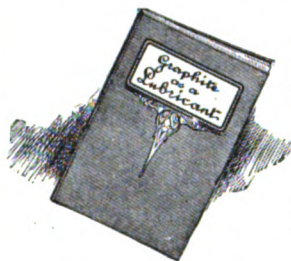
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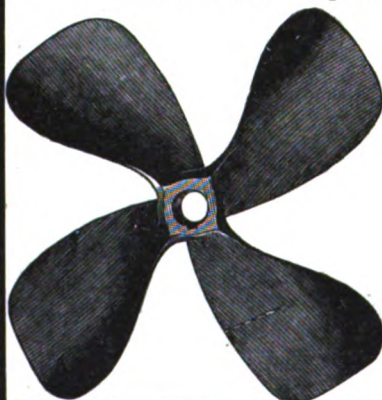
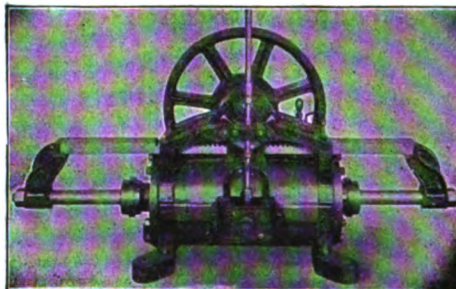
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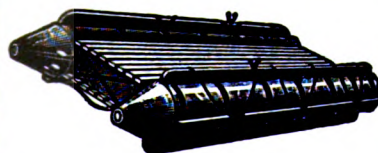
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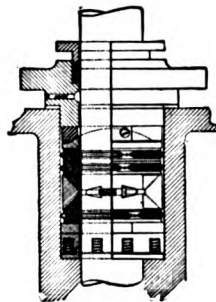
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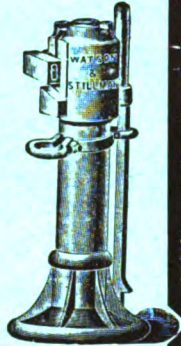
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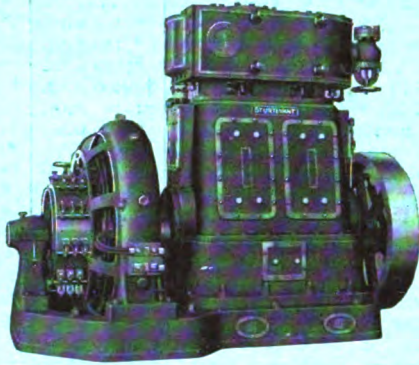
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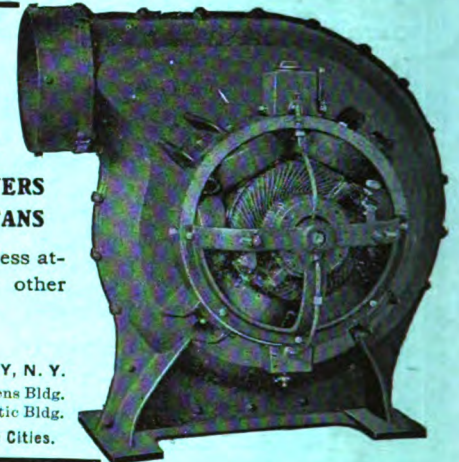
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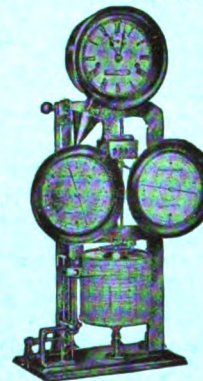
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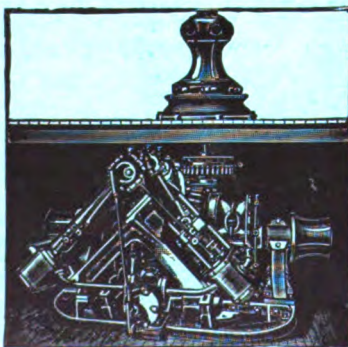
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